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MPM Metal Products Manufacturing

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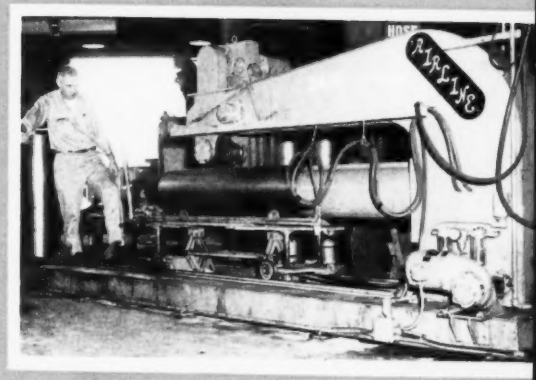
Serving the Appliance and Fabricated Metal Products Industry



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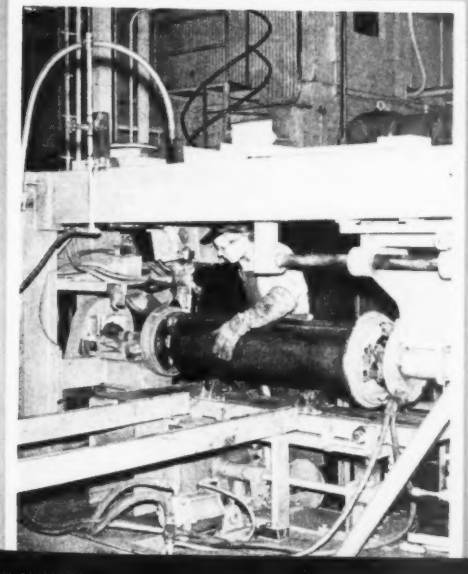
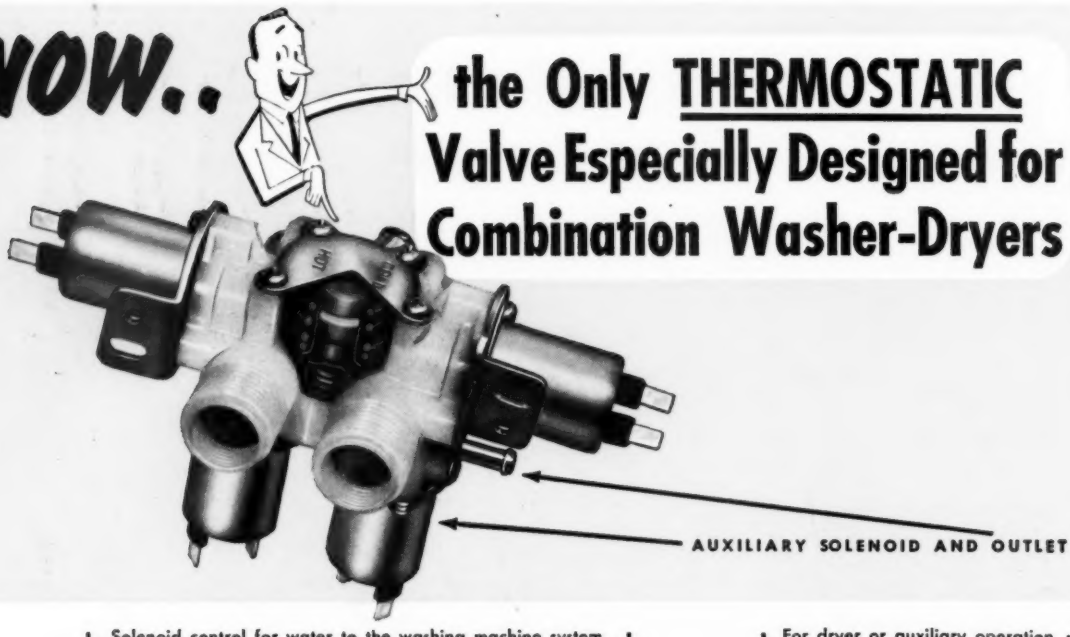
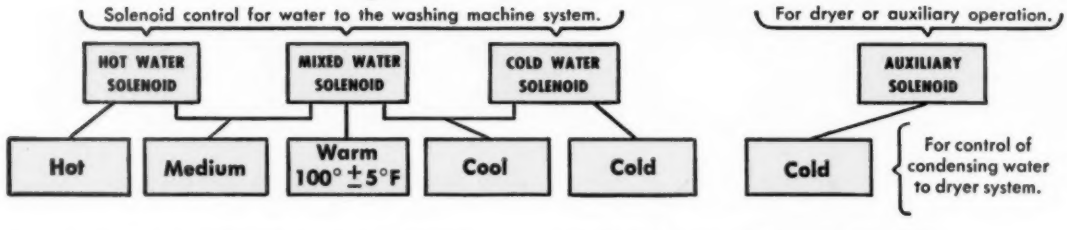


Philco's "Automagic" Washer — Page HL-6

NOW.. the Only THERMOSTATIC Valve Especially Designed for Combination Washer-Dryers





Now it's possible to add a greater range of temperature selection to automatic washer-dryers for the ultimate performance in washing the new synthetic fabrics.

The new M-45 Detroit THERMOSTATIC Water Mixing Valve now enables you to design an automatic washer-dryer with 5 temperatures plus 1 auxiliary temperature for operation of dryer condenser or accessories.

Like all other Detroit THERMOSTATIC Water Mixing Valves, the M-45 incorporates the Vernatherm® element, developed and engineered by Detroit Controls.

Our development staff will gladly cooperate with you to give you full information about this new valve.

Here is another Detroit Product Line to serve the Appliance Industry.

Detroit TyniSwitches® are smaller in size than other snap switches of equal rating, yet provide the maximum degree of operating efficiency.

Class 1 TyniSwitch

- Top mounted and top actuated with variety of terminals and actuators. Write for our Bulletin 263-B.

Class 4 TyniSwitch

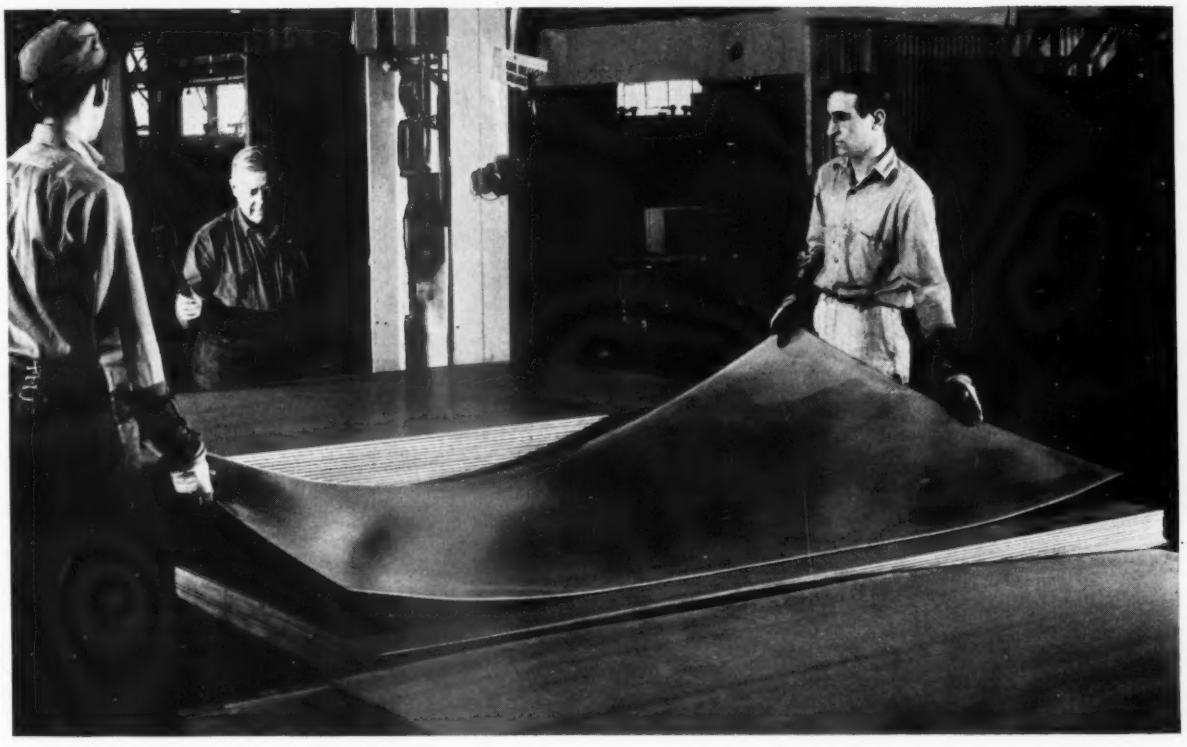
- Side mounted and top actuated with a choice of actuators and terminals. Write for our Bulletin 270.

All Detroit TyniSwitches are virtually bounceless, and they are exceptionally resistant to shock and vibration.

Detroit Controls Division of American-Standard, 5900 Trumbull Avenue, Detroit 8, Michigan.

AMERICAN-Standard
DETROIT CONTROLS DIVISION

How Armco Enameling Iron Helps Home Laundry Equipment Sales



Close inspection at each stage of manufacture helps maintain uniformity of special enameling qualities in Armco Enameling Iron.

In today's quality-conscious home laundry equipment market, Armco Enameling Iron for porcelain enameled parts makes it easy to maintain the high quality that boosts sales. Here's why:

Armco Enameling Iron was created specifically for porcelain enameling. It has excellent resistance to sag . . . maintains dimensional stability under high firing temperatures. In forming, fewer strains are set up in the metal. Good welds are easily obtained. Rigid standardized controls assure uniformity of these qualities from shipment to shipment.

All this adds up to a consistently better porcelain enamel finish that passes close inspection with fewer costly rejects and reoperations. Fill in and mail the coupon for a free copy of our catalog, "Armco Enameling Iron." To discuss specific applications, write our Marketing Service Department.

New steels are born at Armco

ARMCO STEEL CORPORATION, 2778 Curtis St., Middletown, Ohio

Send me a copy of your catalog, "Armco Enameling Iron." We manufacture_____

NAME _____

POSITION _____

COMPANY _____

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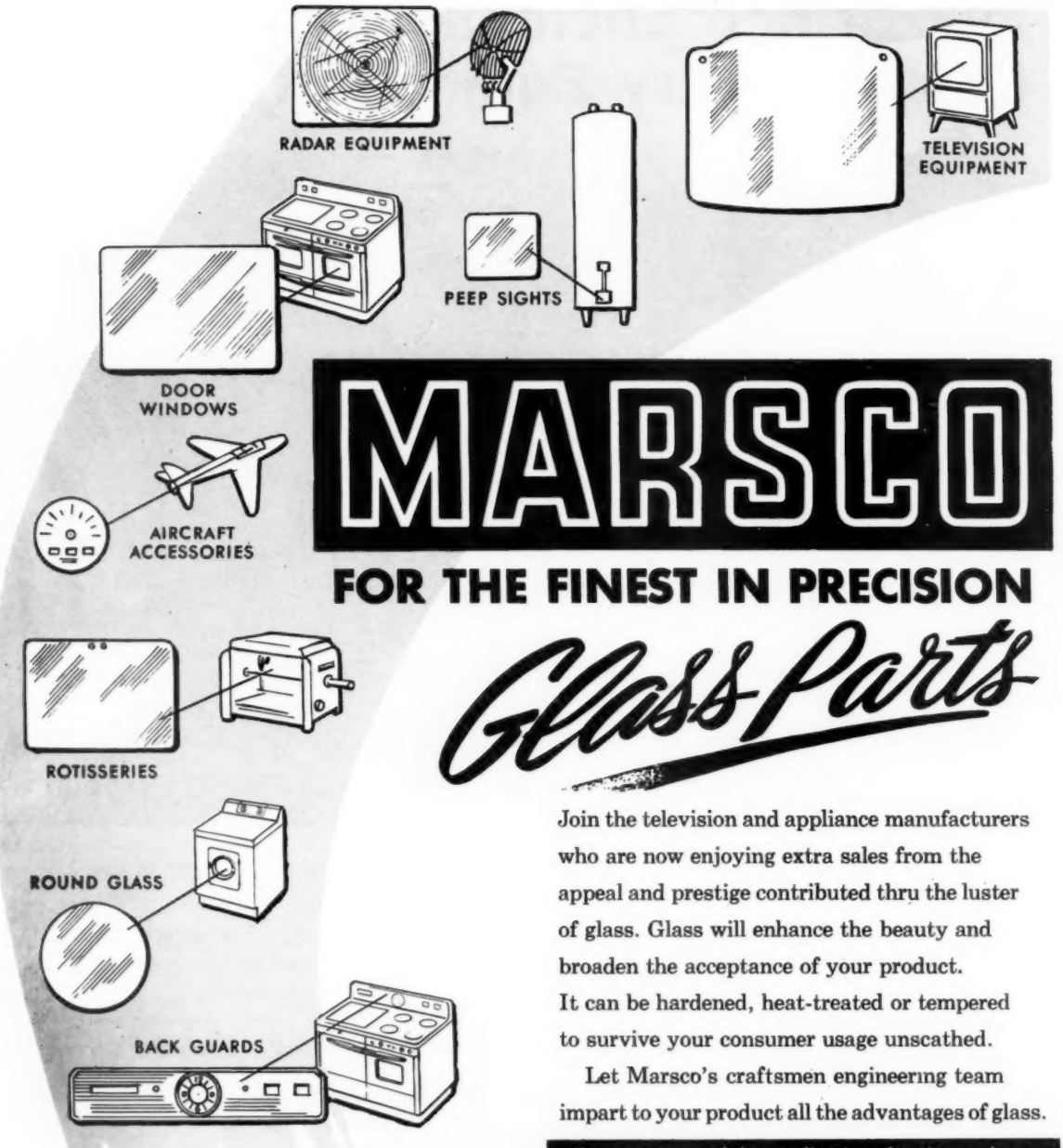
Armco Division • Sheffield Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products



MARSCO

FOR THE FINEST IN PRECISION *Glass Parts*

Join the television and appliance manufacturers who are now enjoying extra sales from the appeal and prestige contributed thru the luster of glass. Glass will enhance the beauty and broaden the acceptance of your product. It can be hardened, heat-treated or tempered to survive your consumer usage unscathed.

Let Marsco's craftsmen engineering team impart to your product all the advantages of glass.

Here are some of the applications for Marsco heat-treated, tempered and hardened glass parts:

- CLOCK AND TIMER CRYSTALS
- RADAR EQUIPMENT
- AIRCRAFT ACCESSORIES
- OVEN DOOR WINDOWS for both Conventional and Built-In Ranges
- LIGHT LENSES
- PHOTOGRAPHIC EQUIPMENT
- DIALS AND NAME PLATES
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- INSTRUMENTS
- MEDICAL EQUIPMENT
- LAMP GLASS
- SHELVING
- ROTISSERIES
- WASHING MACHINES
- DRYERS
- PEEP SIGHTS FOR WATER HEATERS

Special Shapes for: Instruments, Gauges, Household and Industrial Appliances.

ask for the man from *Marsco*

MARSCO MFG. CO., 2901 S. HALSTED ST., CHICAGO 8, ILL.

SEPTEMBER • 1958

VOL. 15 • NO. 9

MPM

(including finish)

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METAL PRODUCTS MANUFACTURING

FROM RAW METAL TO FINISHED PRODUCT

A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. The editorial scope covers design, engineering, market and statistical information and technical and practical information on plant facilities and all phases of manufacturing "from raw metal to finished product." Free controlled circulation to top management, purchasing, engineering and key plant management and supervision in metal product manufacturing plants. To others, subscription price is $8.00 per year, domestic. To all other countries $10.00 per year (U.S. funds). Single copies, $1.00.

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HOW APOLLO GLAMOR METALS
Open New Channels to Profit and Sales

New Channels to Profit . . . . . .

1. **APOLLO glamor metals arrive at your plant ready for immediate fabrication**—beautifully pre-finished, pre-plated or pre-polished to your specifications.
2. **Just form, package and ship**—your product goes to market with an absolute minimum of work, worry and time.
3. **Your investment is minimum**—only the material and any standard shop cutting or forming equipment are required.
4. **Extras are eliminated**—the excellent, uniform quality of APOLLO Pre-Finished Metals puts an end to costly piece plating, finishing or polishing within your own shop.
5. **No waste, no unnecessary stocking**—you can plan your production, order the exact quantity you require . . . sheets, strips or coils . . . and get delivery timed to your schedule.
6. **Expert assistance**—APOLLO'S factory-trained staff will work with you from the design stage to finished product . . . just ask for help.

New Channels to Sales . . . . . .

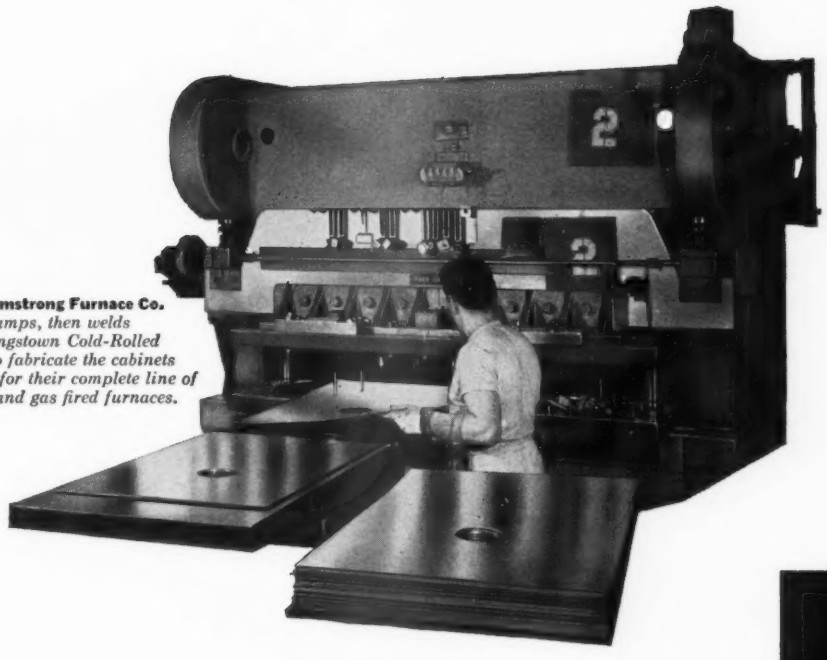
1. **In the home**—relaxed living is taking over and so is metal. APOLLO Metals are abreast of the trend with a full range of finishes and forms ideal for kitchen accessories and appliances • living, dining and family room furniture trim • lighting fixtures, lamps and lamp shades • attractive, unbreakable decorator items from wall plaques and picture frames to trays and planters • every conceivable home item where metal makes living easier.
2. **Commercial and business**—the horizon is unlimited, so are APOLLO Pre-Finished Metals. Pick your market: counter trim, restaurant accessories and appliances • automatic vending equipment • advertising displays that sparkle as only metal can • novelties • low cost, attractive gift items • salesmen's pass-ons • metals that meet commercial and business needs for quality, prestige and economy.

Call an APOLLO representative and tell him you want more facts about new channels to profit and sales...or get information direct from our factory

Apollo METAL WORKS

6684 S. OAK PARK AVE.
CHICAGO 38, ILLINOIS

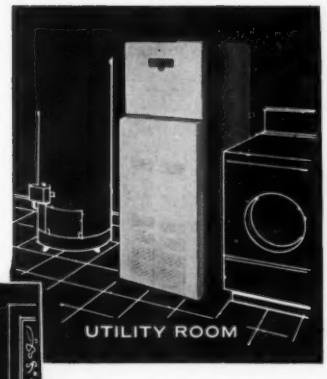
Factories in Chicago, Ill., and Bethlehem, Pa. • • • Nationwide Representation



Armstrong Furnace Co. *forms, stamps, then welds Youngstown Cold-Rolled Sheets to fabricate the cabinets for their complete line of oil and gas fired furnaces.*

Accent on Excellence

Youngstown cold-rolled sheets



ARMSTRONG
FURNACE COMPANY

Today's modern home owners are partial to heating units that tuck back out of the way—blend right in with their over-all decor. As a result, more and more are turning to the beautiful new Counterflow units produced by Armstrong Furnace Company of Columbus, Ohio.

Because exterior appearance is so important to customer satisfaction, Armstrong fabricates cabinets for their complete furnace line from the finest flat-rolled steel available anywhere—Youngstown Cold-Rolled Sheets.

Wherever steel becomes a part of things *you* make, the high standards of Youngstown *quality*, the personal touch in Youngstown *service* will help you create products with an "accent on excellence".

QUALITY YOUNGSTOWN SERVICE

THE
YOUNGSTOWN
SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel, Youngstown, Ohio

TURCO Gets a Better, More Uniform Finish And Cuts Paint Cost 35% with—

RANSBURG

NO. 2 PROCESS

Frequent color changes are simplified now in the painting of playground equipment with Ransburg Electro-Spray in this St. Louis plant. Long, tubular parts, as well as these smaller pieces, are uniformly coated with the Ransburg reciprocating disk.

QUALITY IMPROVEMENT! That was Turco Manufacturing's chief reason for changing from flo-coat to electrostatic spray painting of their quality line of playground equipment.

Not only is Ransburg No. 2 Process providing a higher quality, uniform coating on all parts, but Turco is saving 35% in paint cost!

Simplicity in color change with Electro-Spray is another important advantage here. With Turco's production methods, colors are changed 15 times in an 8-hour shift. Now, changes are made on the fly with no down-time. By contrast, the former "stop and go" method would mean over an hour's lost time in a day's operation.

NO REASON WHY YOU CAN'T DO IT TOO!

Whatever your product, if it's painted, we'd like to tell you more about the worthwhile savings and benefits which can be yours with RANSBURG ELECTROSTATIC PAINTING PROCESSES. Write for our No. 2 Process brochure which cites many examples of electrostatic spray painting on a wide variety of products.

Call or write

RANSBURG
Electro-Coating Corp.
3939 West 56th St., Indianapolis 23, Ind.

INDUSTRY MEETINGS

MATERIAL HANDLING

Meeting of The Material Handling Institute, Inc., The Greenbrier, White Sulphur Springs, W. Va., September 22-24, 1958.

IRON AND STEEL

Iron and Steel Exposition, and Annual Convention of the Iron and Steel Engineers Association, Cleveland Public Auditorium, Cleveland, Ohio, September 23-26, 1958.

PORCELAIN ENAMEL

Porcelain Enamel Institute's Annual Meeting, The Greenbrier, White Sulphur Springs, W. Va., September 25-27, 1958.

PRESSED METAL

Pressed Metal Institute's Annual Meeting, The Cloisters, Sea Island, Ga., September 28-October 2, 1958.

TOOL ENGINEERS

American Society of Tool Engineer's Semi-Annual Meeting and Western Tool Show, Shrine Exposition Hall, Los Angeles, Calif., September 29-October 3, 1958.

PAINT AND VARNISH

The thirty-sixth Annual Meeting of the Federation of Paint and Varnish Production Clubs, and the twenty-third Paint Industries Show, Cleveland Public Auditorium, Cleveland, Ohio, October 5-8, 1958.

GAS ASSOCIATION

The American Gas Association's 40th Annual Convention, Atlantic City, N. J., October 13-15, 1958.

PACKAGING, HANDLING, SHIPPING

Thirteenth Annual Packaging, Handling, and Shipping Show, (Society of Industrial Packaging and Materials Handling Engineers) Coliseum, Chicago, Ill., October 14-16, 1958.

ELECTRICAL ENGINEERS

American Institute of Electrical Engineer's Fall General Meeting, Pittsburgh, Pa., October 27-31, 1958.

ELECTRICAL MANUFACTURERS

National Electrical Manufacturers Association's Annual Meeting, Traymore Hotel, Atlantic City, N. J., November 10-14, 1958.

"...AND WEIRKOTE® CAN DO AWAY WITH PLATING OR DIPPING AFTER FABRICATION! IT WON'T PEEL OR FLAKE."

Q. A zinc-coated steel that won't peel or flake? That could save us a lot of money every month. Just what makes this Weirkote so special?

A. It's made by the continuous process, you know, which integrates zinc and steel so that the toughest fabrication won't break down the bond. You can work Weirkote to the very limits of the steel itself.

Q. Of course, that means the most complicated parts would have protection against rust. I like what I'm hearing. Is there more?

A. Yes . . . now Weirkote is treated to inhibit wet storage stain (white oxide). To make a long story short, I'd say this: With Weirkote, you can turn out a better product at lower cost. And you can free a lot of the capital, floor space and time you have tied up in plating operations.

Send for free booklet that details the time- and cost-saving advantages of skin-tight zinc-coated Weirkote. Weirton Steel Company, Dept. R-7 Weirton, West Virginia.

WEIRTON STEEL COMPANY

WEIRTON STEEL COMPANY

WEIRTON, WEST VIRGINIA

a division of

NATIONAL STEEL CORPORATION

MAC CHEM 1-2 CLEANING PROCESS for ENAMELING

for High Quality PORCELAIN ENAMELING

IT'S A HIGH SPEED CLEANING PROCESS THAT CLEANS SO IT STAYS CLEAN

In enameling, there's nothing so costly and disheartening as rejects. If you are faced with this difficulty—due to unclean metal parts—Mac Chem 1-2 Enameling-Cleaning Process can be of an infinite help.

While we do not claim that Macco Cleaner and Cleaning Process will entirely eliminate all rejects, we do maintain they will reduce them to minimum.

1 Mac Clean No. 20 is a Heavy Duty Cleaner specifically designed to remove all special enameling drawing compounds, etc. It is a fast, easy-to-use, economical cleaner — non-toxic, non-corrosive, and non-injurious to metals.

2 Mac Chem No. 30 is a Second Step, Light Duty Cleaner which removes all residue from the cleaner baths, leaving the metal so chemically clean that it stays clean and readily accepts acid pickle and nickel.

FOR QUICK RESULTS

Write or phone Macco today and have a Macco engineer make a demonstration in your plant. No obligation, of course.

This 2-Stage Metal Cleaning System is serving some of the country's largest porcelain enameling plants. Can be used with equal effectiveness in both automatic and batch type equipment.

MACCO PRODUCTS COMPANY

Manufacturers of Better Metal-Working Compounds since 1931

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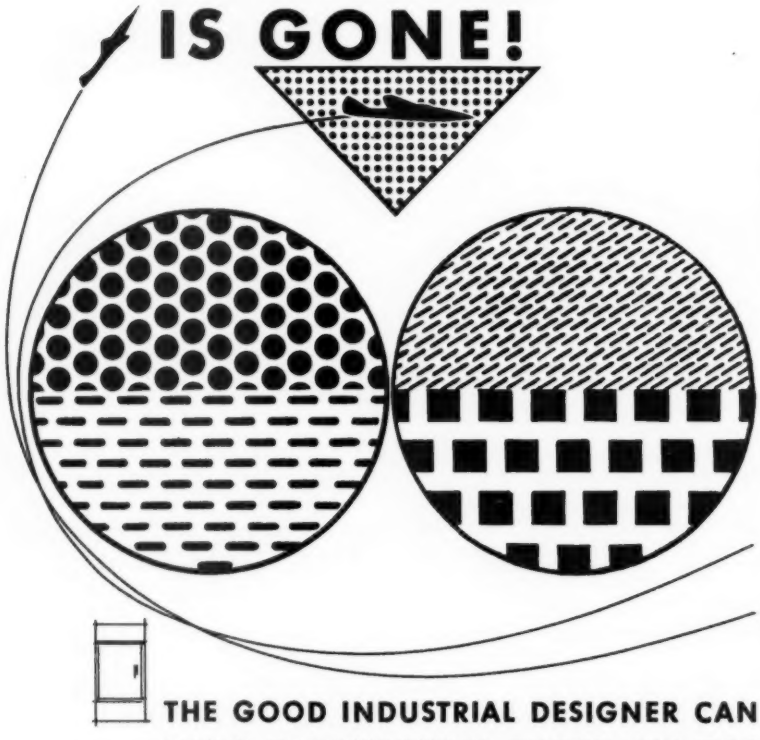
There is no substitute for stainless steel in automobiles

No other material is as bright, strong and resistant to rust and wear as Stainless Steel. It gives every car the clean, exciting beauty that sells in the showroom and re-sells on the used car lot. Look for *Stainless Steel* on your new automobile.

Specify McLouth high quality sheet and strip Stainless Steel. McLouth Steel Corporation, Detroit 17, Michigan.

McLOUTH STAINLESS STEEL

TODAY'S DESIGNER IS GONE!



THE GOOD INDUSTRIAL DESIGNER CAN ONLY BE FOLLOWED TODAY. HE HAS DESIGNED TODAY'S PRODUCT YESTERDAY AND THEN MOVED ON TO TOMORROW.

Perforated metals are part of what he has left us, with the promise of more and better applications through the continued use of this versatile design tool.

We have had a sampling of what can be done—from airplanes to incinerators, designers have incorporated perforated metals into modern products—their ideas have proved themselves—it is now left to the imagination of the creative designer to provide a fuller legacy.

Charles Mundt & Sons are specialists in perforated metal design and production. We have ideas gained through 89 years experience as specialists in the use of peforated metals. We'd like to share these ideas with you.

Perforating Specialists of All Types of Metals

Write for your free copy of "Perforated Metals for Every Purpose".

CHARLES MUNDT & SONS

55 FAIRMOUNT AVENUE • JERSEY CITY 4, N. J.

from the Editor's Mail

Interested in Servel

Gentlemen: Some time ago, I read an article in METAL PRODUCTS MANUFACTURING magazine concerning the sale or merger of Servel Co.

Would it be possible for you to advise me of the name of the company that is now operating the Servel concern, or the name of the people who might have purchased their equipment.

F. R. Tettemer, American National Dispensing Co., Ivyland R. D., Pa.

Ed. Note: The Servel refrigerator line and other properties were purchased by Whirlpool Corp., St. Joseph, Mich., (See MPM, Feb. '58).

Statistics of interest

Gentlemen: We manufacture steel cellar doors and attic fans. We would like to obtain Market statistics on these products.

I read your Market statistics on various metal products in your April issue of "Metal Products Manufacturing;" however, no information for the above was shown.

We would very much appreciate this information from you, or a source you could recommend.

E. V. Wyatt, Manager
Gordon Mfg. Co., Inc.
Farmington, Conn.

Inquiry from down under

Gentlemen: We were delighted to read your excellent article in "Metal Products Manufacturing," April issue. The article we refer to is "Porcelain Enameling Steel Plumbing Ware at Briggs."

Here in Australia, we are in the process of producing a sheet steel bath, and were very interested to learn that Briggs are concentrating on two-coat thickness, or .015". It has been accepted here that on steel, one-coat work should always be aimed for; the main reason, of course, is the cost factor.

On reading your article, however, no doubt Briggs are concentrating on two-coat work for other reasons, which we assume must be finish, durability, and extra protection. Of further interest would be packaging and handling methods; for this reason here we are finding distributor resistance, as the damage factor is rather high, and they favour therefore the cast iron bath. Also, are sheet iron baths making headway against cast iron in America, and which type enjoy the larger sales volume, or what percentage?

We are rather thirsty for any news.

to Page 24 →

Alkalume AC#1 is a safe, easy to use, non-silicated liquid used at low concentration with water. This latest addition to Northwest's outstanding line of specialized chemicals for use with today's modern metals offers these desirable features—

- **Non-alkaline, non-etching, non-filming.**
- **Gives uniform, unblotched brilliance.**
- **Wets out unusually well.**
- **Ideal as follow-up to heavy-duty precleaner.**
- **Excellent as single stage cleaner for light soil.**
- **Economical to use.**
- **Unusually long service life.**
- **Non-hazardous, no offensive odor.**
- **No disposal problem.**

Got a Problem? Let our Cleaning Specialists help you!

Complete details will be sent upon request.

"The name NORTHWEST means first with the best."

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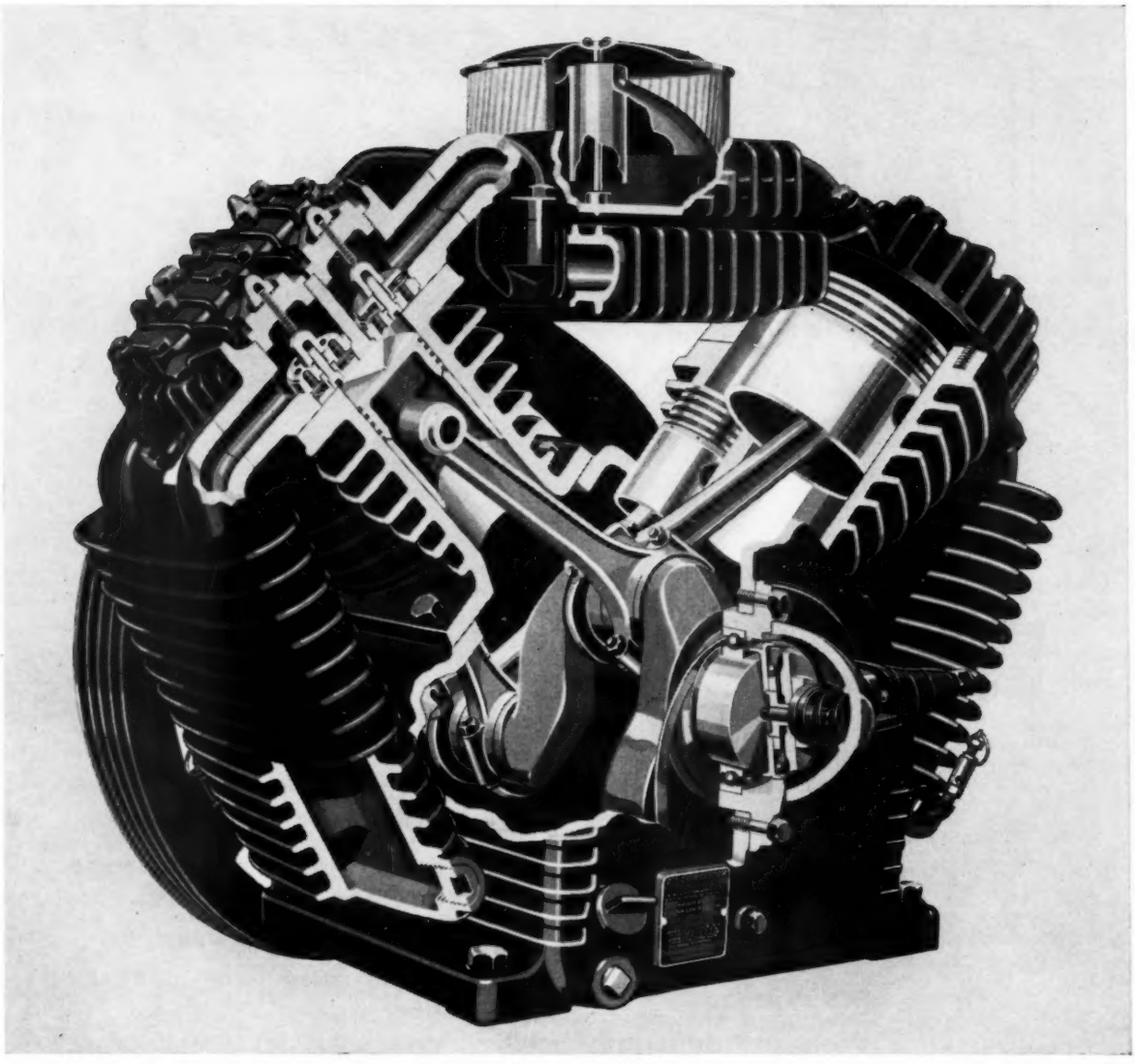
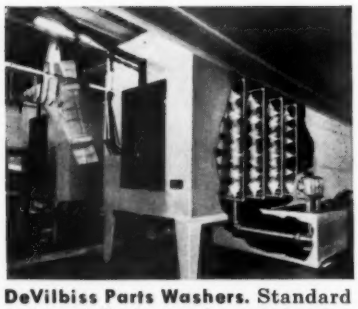
NORTHWEST CHEMICAL CO.

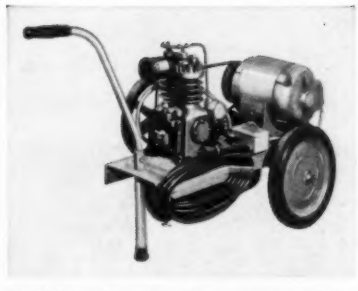
9310 ROSELAWN DETROIT 4, MICH.

How DeVilbiss Air Compressors pay for





DeVilbiss Parts Washers. Standard and specially designed metal cleaning units for all requirements.
Write, stating requirements



DeVilbiss Portable Compressors. Take air wherever you need it. ¼ through 15 hp. Compact, yet powerful.
Send for Catalog M-52

DeVilbiss Dust Collectors. Ready-made, completely fabricated units. Need only simple connections.
Send for Dust Collector Catalog

themselves in power savings alone

Low-friction design and precision manufacturing are the secrets . . . giving you as much as 22.6% more air per power dollar!

If you're in the market for an air compressor, don't be misled by purchase price. More important, is the cost of operation. In fact, over the normal life span of a compressor, you can usually expect the cost of its operation to be 2½ to 3 times greater than the purchase price.

As a result of precision design and construction, DeVilbiss can cut these operating costs as much as 22.6%—usually enough savings over the service life of the compressor to pay for its initial cost.

These remarkable savings made with DeVilbiss air compressors are due to their low-friction design — (1) shorter piston stroke (2) slower piston travel (3) ball-bearing mounted crankshaft (4) full-floating piston pins, and (5) controlled oil feed to all bearing and cylinder surfaces.

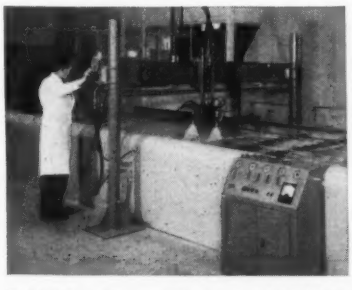
By reducing losses due to friction, slippage, and heat, these DeVilbiss features not only bring you more air for your power dollar, but lower your maintenance and depreciation costs.

You'll find a complete line of DeVilbiss air compressors—single- and two-stage outfits, from ½ to 25 hp. And your DeVilbiss man will help you select the right one to handle your work most efficiently and economically. Call our nearest branch office; or write us direct for Catalog C-50 on air compressors.

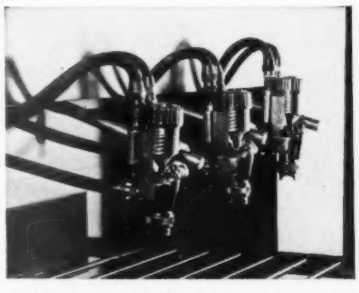
Remember: Air compressors are just one of a complete line of industrial-finishing products offered by DeVilbiss and its subsidiary—DeVilbiss Metal Fabricators Co., successor to the consolidated companies, Peters-Dalton and Newcomb-Detroit.

DE VILBISS

THE DEVILBISS COMPANY, Toledo 1, Ohio • Barrie, Ontario • London, England • Branch Offices in Principal Cities



DeVilbiss Automatic Spray Machines coat products of any size or shape, quickly, economically, automatically.
Send for Series I-8000 Bulletins



DeVilbiss Automatic Spray Guns increase rate of production; reduce costs to fraction of manual method.
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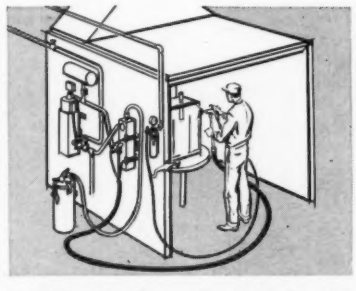

DeVilbiss Hot Spray. Provides heavier film build, with faster drying, less overspray, and fewer rejects.
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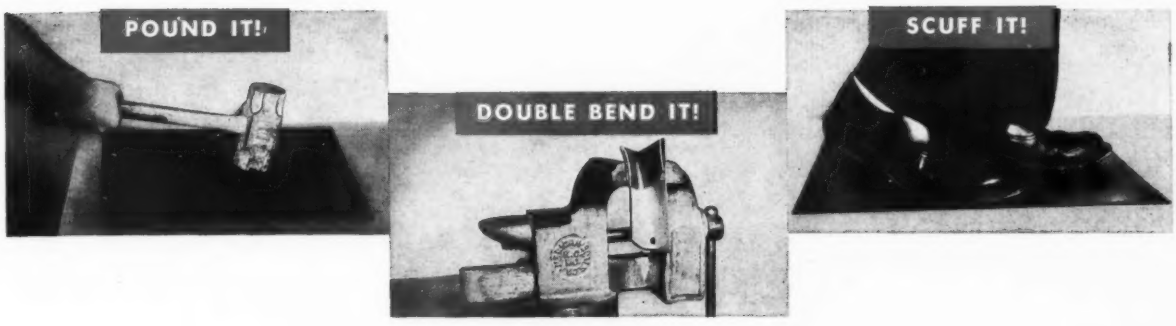

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can take it...and then some!

Nobody . . . but nobody has produced an enamel coating for metals that combines in one finish, the extremes of hardness and flexibility built into this really new . . . yes revolutionary Egyptian development.

Egyptian S-200 gives you the additional advantage of economical application too . . . for in most cases one coat does the job of the conventional two-coat system . . . its outstanding resistance to chemicals, moisture, grease, and salt spray, coupled with superior adhesion and durability, makes Egyptian S-200 the ideal coating for products that must take it . . . and then some!

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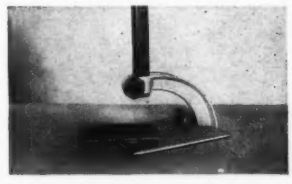

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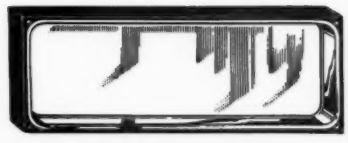

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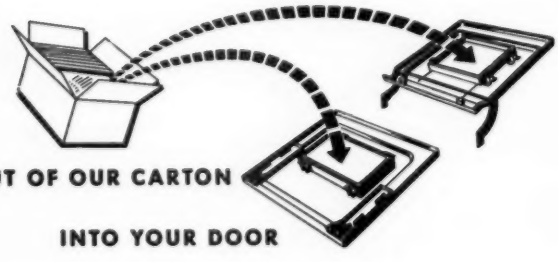

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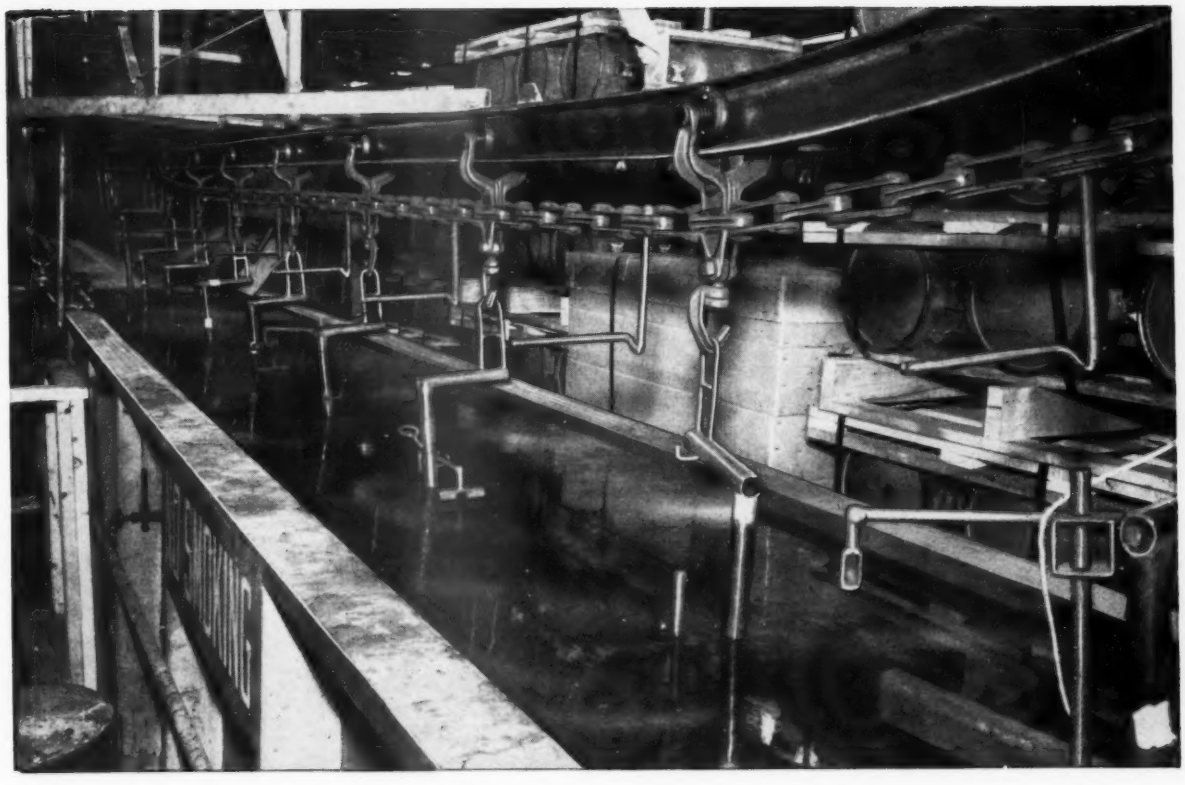

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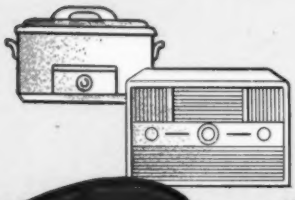
One coat does the work of two . . . with



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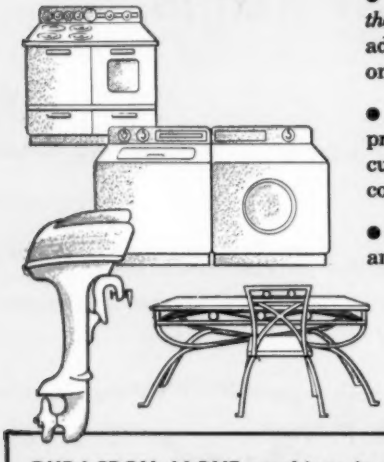

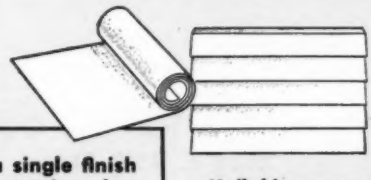

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General view of a new automatic weld roll planishing machine installed at Day & Night Mfg. Co., Monrovia, Calif. After container weld seam is positioned to feed between planishing rolls, a switch sets the planisher in motion and completes the planishing cycle.

Automatic weld roll planishing machines speed container production

AN MPM STAFF FEATURE

EXCLUSIVE MPM PHOTOS

AMONG THE PLANTS where fully-automatic weld roll planishing machines are doing yeoman duty in production are United States Steel Corporation's plant at Alameda, Calif., and Day & Night Mfg. Co., Div. of Carrier Corp., Monrovia, Calif. These new automatic planishers will accept a container directly from the discharge conveyor of an automatic welder, planish the weld seam, and have it ready for the next operation in approximately 20 seconds. The only manual effort used in its operation is to position the container on the planisher's automated carriage so that the weld seam feeds directly between the planishing rolls.

U. S. Steel Corp. is using the automatic planisher for planishing flash-welded seams on containers such as pails, drums, etc. The newly-designed machine solved a very real problem in this particular case. The rough flash on the flash-welded container seams could not be ground flush at a cost commensurate with the value of low-cost containers. Though some slight grinding was accomplished, it was impossible to obtain a smooth finish coating minus a flush grind. The automatic planisher smooths this flash protrusion until it is almost impossible to detect the weld seam after the container has been painted.

Day & Night Mfg. Co. is using the new automatic planisher for planishing

the automatically-made weld seams in water heater tanks. In this particular installation, the heater bodies feed directly from the discharge table on the automatic welder onto the carriage of the automatic planisher. The weld seam is then moved into correct position by the operator, the planisher takes over and planishes the weld seam, ejects the tank from the arm holding the lower planishing roll, then kicks it from the carriage onto another conveyor which moves it toward the next operation.

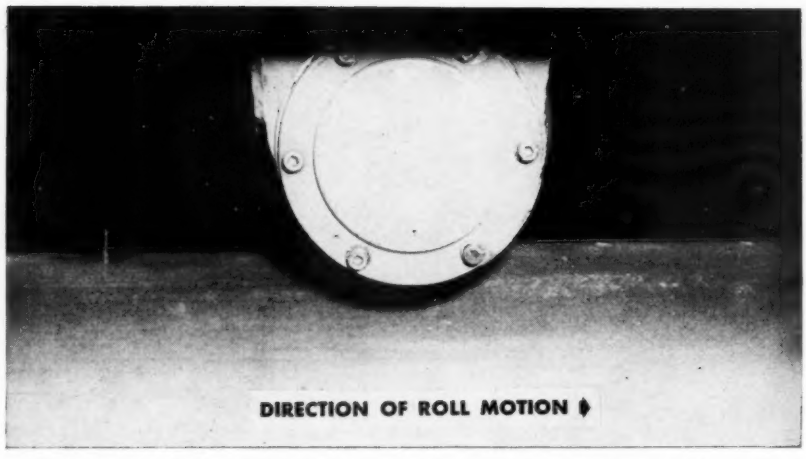
Aside from its speed and convenience, Day & Night officials point out that other obscure advantages accrue. To begin with, planishing the weld seam increases its mechanical properties up to 20 per cent. The ductility of the weld metal is also improved. And finally, cleaning of the heater tanks after planishing is a much simpler operation than the cleaning of heater bodies wherein the weld seams have been ground flush. Usually, a very light grit blasting is all the cleaning required.

The automatic machine employs a sprocket chain-driven carriage for supporting and moving the container shell during the planishing operation. On the inward stroke, while the weld is being planished, the shell is driven by the planishing rolls themselves, and the carriage is merely "towed" along. At the end of the planishing pass, after the planishing rolls have retracted, an automatic clutch engages and moves the carriage back to its starting position, carrying the planished container shell with it. When it reaches this position, automatic fingers kick the container shell from the carriage onto a second conveyor which carries it to the next operation.

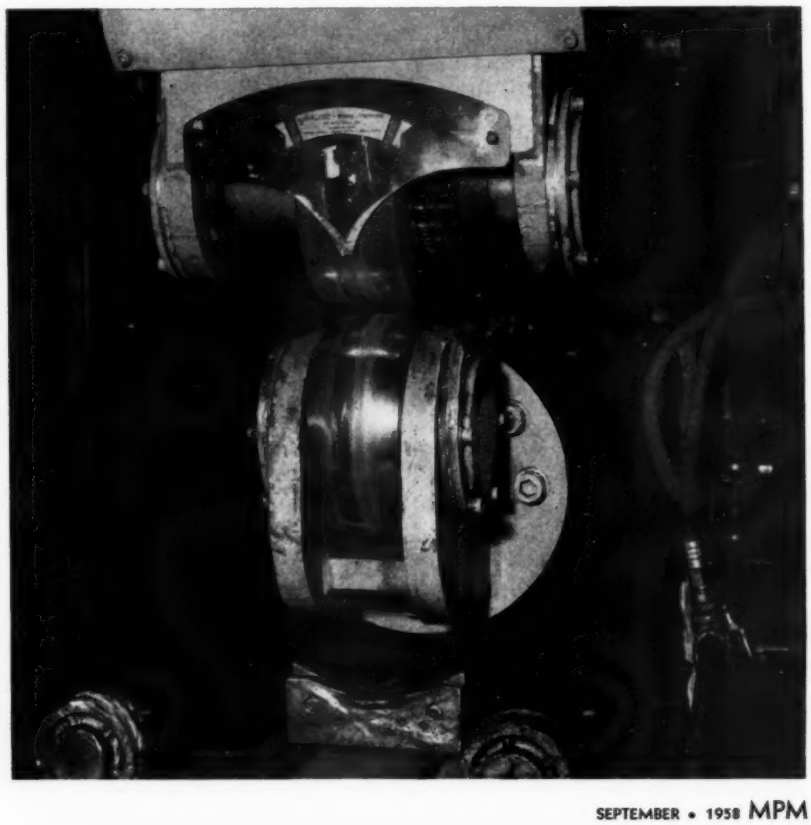
The machine is adjustable for handling container shells up to 52 inches long, and in diameters varying from 12 inches to 24 inches. The pneumatically-operated rolls exert 10-tons pressure during planishing, but as actual contact of the rolls with the welded metal usually occupies less than 1/10th of a square inch (dependent upon the shape and width of the weld seam), total pressure exerted to planish the weld metal is in excess of 150,000 psi.

While the results obtained on the automatic planisher are comparable to those obtained using a hand-operated planisher, the advantage of the new automatic type is that it can be fitted into an automated production line, thereby making it unnecessary to remove container shells from an automated line for hand planishing. The automatic also handles the work much faster than the older hand technique. A more obscure advantage of the new automatic is that the inside planishing roll is shaped so that the interior of the weld seam is planished into a true contour with the periphery of the container body. This eliminates any bothersome "flat" at each end of the weld seams which may offer an obstruction to the insertion of press-fit bottoms and tops.

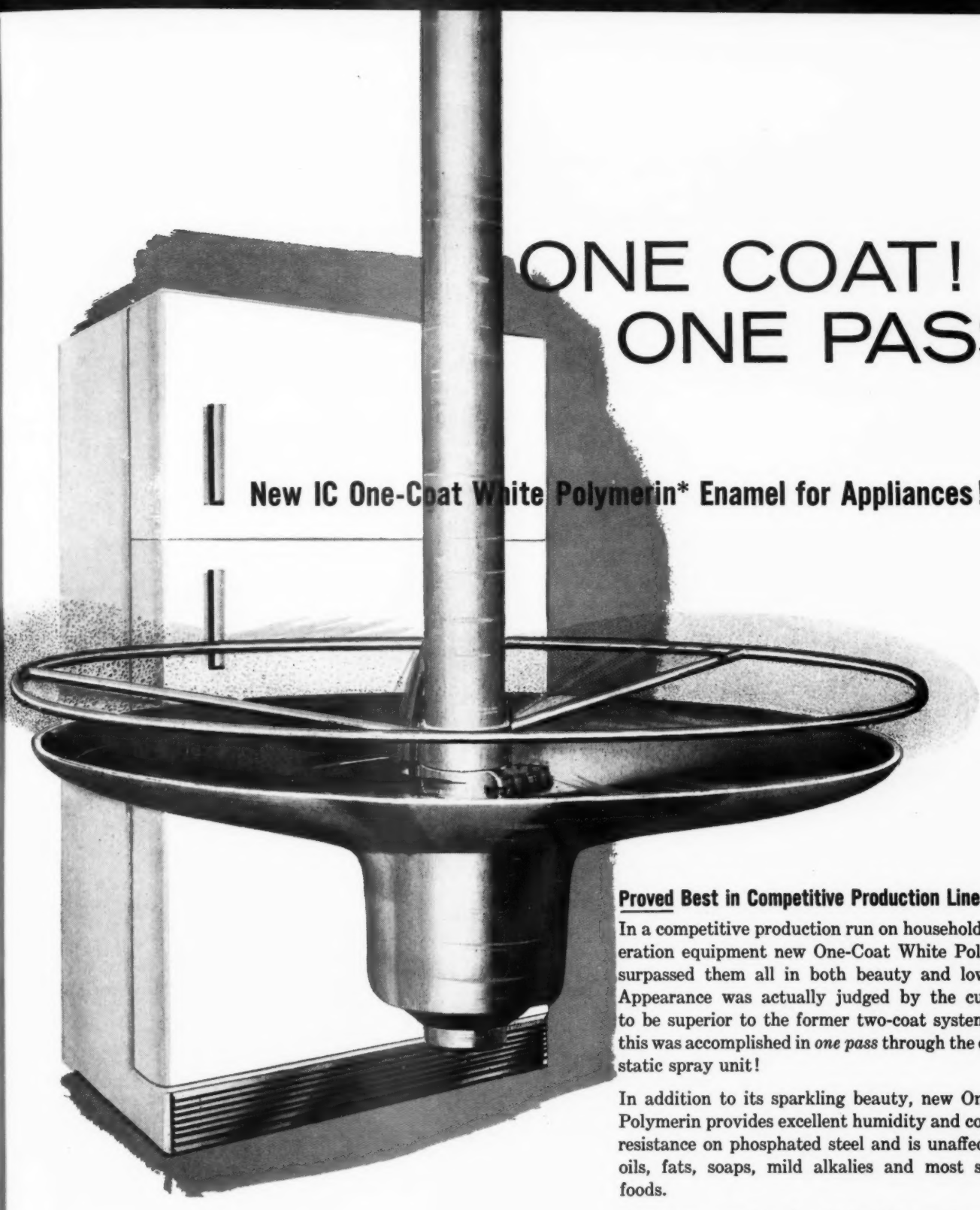
Adjusting the new automatic for any size container up to the maximum size acceptable is accomplished by resetting a few stops and limit switches, and adjusting the height of the carriage.



"Before and after" view of weld seam after passing through planishing rolls.



Head-on view of planishing rolls which exert ten-ton pressure, applied pneumatically, while planishing. Note contour of lower planishing roll which planishes interior of weld seam into a true contour with periphery of container body.



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Roller coating reduces finishing costs

applying and baking enamel before forming drapery hardware speeds production and cuts cost as much as forty-one per cent

STANLEY-JUDD, Wallingford, Conn., a division of Stanley Works, was faced with the typical problem of cutting finishing costs. The company's product, drapery hardware, is a high production item, and one that must be produced with a minimum of waste and handling.

Plant Superintendent G. C. Cooper and his staff, A. E. Gledhill, industrial engineer, and V. F. Sordillo, finishing foreman, tackled the problem as a part of a cost reduction program. Due to the design of many of the parts, they are extremely difficult to coat, both inside and out, after fabrication. Also, the fact that each piece had to be transported to the coating line, manually placed on conveyor fixtures, removed, then transported to assembly, meant an excessive labor handling cost. It was evident that, if a method could be found to automate this operation and reduce the amount of paint used, a large saving could be made. At this point, various finishing methods were reviewed, including various types of spray applications, flow coating, and continuous roller coating.

Roller coating advantageous

The roller coating process was determined to be advantageous for the Stanley-Judd production, if automatic pre-coating prior to fabrication could be proved to be practicable.

Following the development work, a complete process line was installed for pre-coating steel or aluminum coil stock prior to fabrication.

For the metal preparation line, coil stock is mounted on reels from which it pays into the production line. Next, there is an accumulator which "stores" stock so that new coils may be put into the line without halting the process. The metal preparation line consists of a five-tank system which provides cleaning of the strip, rinsing, phosphatizing, rinsing, and a final acid bath. The cleaning and bonding processes may be varied, depending upon the final finish to be applied. A typical process for a baked enamel is as follows: The strip, after leaving the metal preparation system, passes through a cooling and drying tower from which it enters the tension and coating unit. The coater has two sets of coating rolls which apply the paint in a metered amount to both sides of the strip. They are so located that different colors or different materials may be applied to each side of the strip. The strip, being under tension, then passes through the oven in a suspended state, during which it is baked.

Rewind a continuous operation

Upon exit from the oven, the coated strip passes through the water cooling unit into the pull-through unit. From there, it proceeds to the rewinder. Two rewinders are provided so that when a pre-determined size coil is rewound, the strip is cut and started on the second rewinder. This enables them to leave a continuous operation, and the coated coil can be removed while the other coil is rewinding.

The oven is 80 feet long, and it is heated by gas recirculating-type heaters. The temperature ranges from 275° F. at the entrance to 550° F. at the exit. The baking time runs from one to one and a half minutes. The speed through the oven ranges from 50 fpm to 80 fpm.

Pull-through rolls at the end of the line apply tension and power the stock travel through the roll coater and oven. Rewind reels then re-coil the finished, painted stock, which is then ready for transfer to the fabricating department.

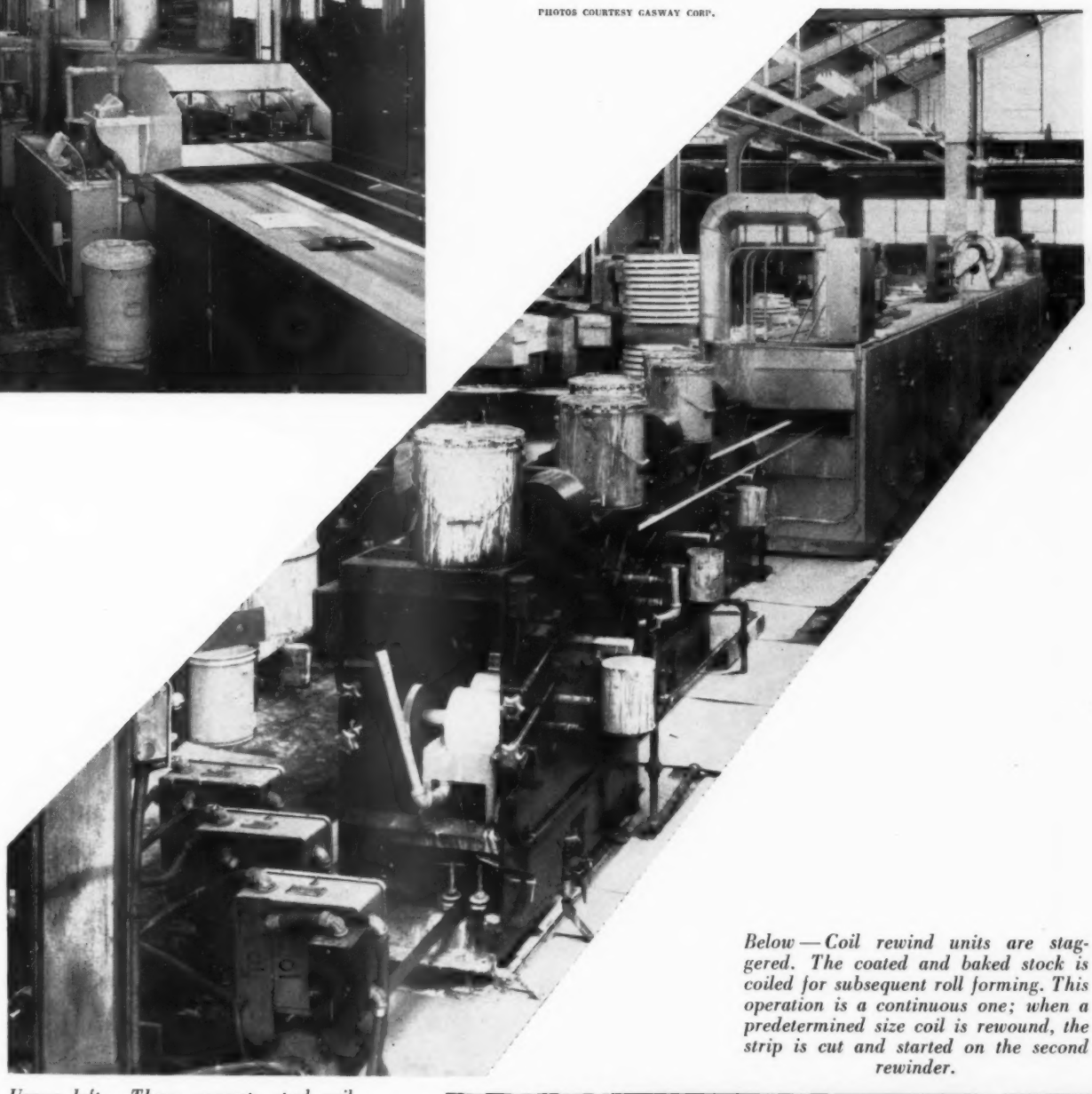
Three separate coils coated simultaneously

Due to the narrowness (3½-inch maximum) of the coiled stock used at Stanley-Judd, there are three roll coaters in the line which coat three separate coils simultaneously. In this way, any coil can be painted any desired color independently of the other coils. The line is set up mechanically so that each strip can travel at an independent speed, allowing for various gauges and widths of steel to be coated at the same time. Although the preliminary investigation of this method of processing had indicated worthwhile savings, the final results exceeded early expectations. Depending upon the products produced, finishing costs have been reduced 25 to 41 per cent over what they were by previous finishing and handling methods.

It has been found that the paint film thickness can be accurately controlled to .8 mil on the outside of the fixture and .2 on the inside, all done simultaneously through equipment adjustment. Steel to be coated is .015 to .040 in thickness, and the widths vary up to 3½ inches.

The advantages of being able to roll-form the coated stock from coils will be evident to the reader. The advantages of eliminating any racking or hanging of the hardware after painting is equally significant.

PHOTOS COURTESY GASWAY CORP.



Below — Coil rewind units are staggered. The coated and baked stock is coiled for subsequent roll forming. This operation is a continuous one; when a predetermined size coil is rewound, the strip is cut and started on the second rewinder.

Upper left — Three separate steel coil strips are shown proceeding through the metal preparation section of the Stanley-Judd finishing line. The line consists of a five-tank system which provides cleaning of the strip, rinsing, phosphatizing, rinsing again, and a final acid bath.

Center — Three roll coaters are shown in line; each coater handles one strip, coating both sides simultaneously. Strips are shown entering oven for baking. The rolls are so located that different colors or different materials may be applied to each side of the strip.

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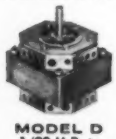
shaded pole
AC induction type



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Editor's Mail

→ *from Page 10*

and would be very glad indeed if you could enlighten us a little more fully in these matters.

While writing, we would like to say we are subscribers to "Metal Products Manufacturing," and find this one of the best publications coming from America, and extend our congratulations to you.

C. R. Catt, Works Director
Malleys Limited
Sydney, Australia

Ed. Note: A copy of MPM's annual statistical review, and the booklet "The National Safe Transit Program," have been sent to reader Catt in the hope that the material therein will answer his queries.

Recognition from Norge

Gentlemen: Virgil Rice and the engineers worked hard and long on these developments. *(Described in July* MPM.*)* The recognition to Norge by your articles describing the ice cube maker and the automated refrigerator production will please our manufacturing and engineering people very much.

I understand that you moved quickly on these stories, and I want you to know I, too, personally appreciate your time and trouble in presenting them so well.

Judson S. Sayre, President
Norge Sales Corp.
Subsidiary of Borg-Warner Corp.
Chicago, Ill.

Ed. Note: MPM editors did move fast on at least one of these features, but only because of the excellent cooperation of Norge's public relations department and the refrigerator division.

Likes seminar coverage

Gentlemen: Thanks for the extra copies of MPM covering our annual chemical coatings seminars. As you surmised, I had seen your June issue previously.

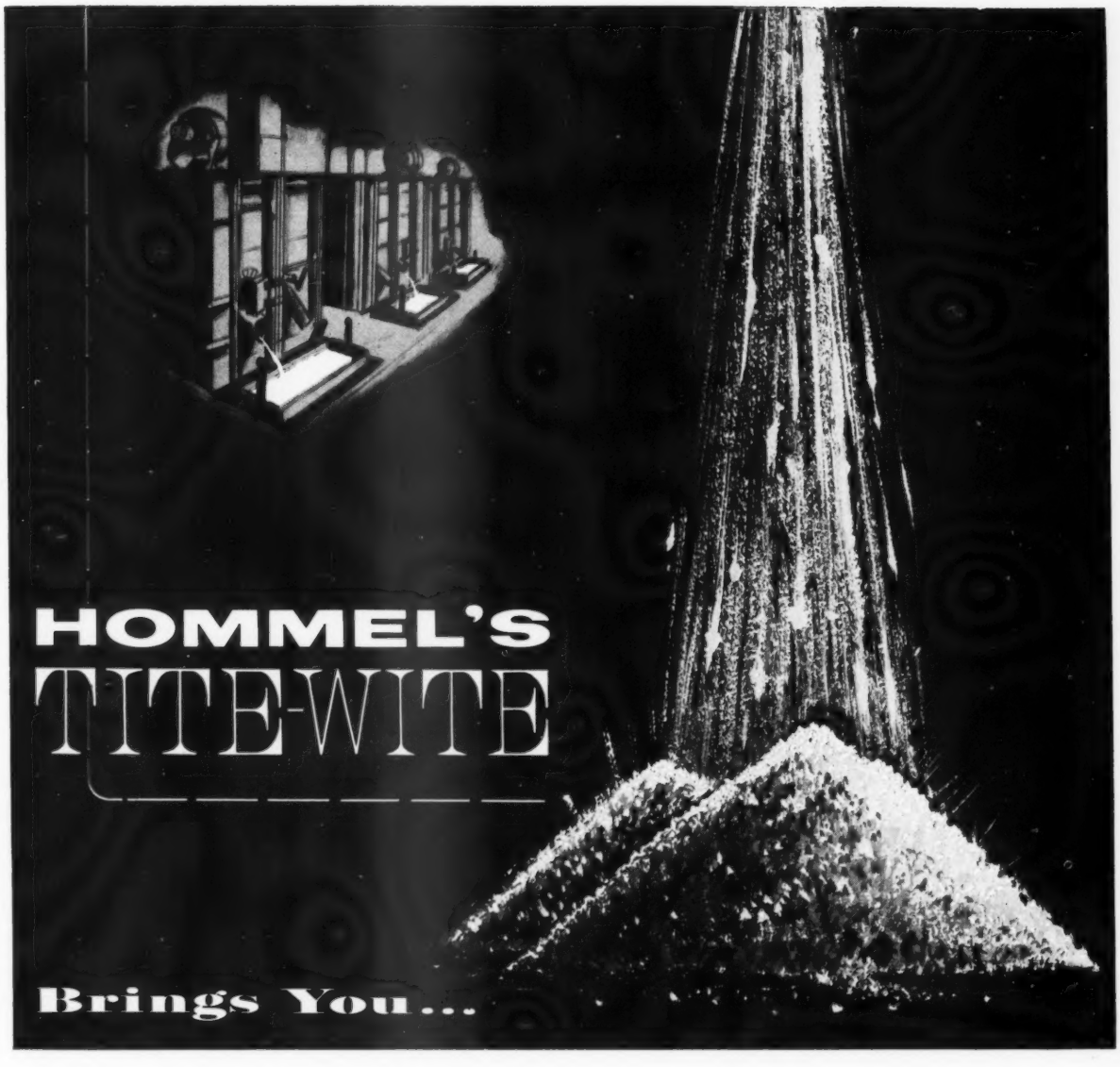
My compliments for the fine job your editors turned out at such short notice and on top of your press time. The only thing they missed was mention of L. A. Elliott, director of our chemical coatings division, who was in charge of the seminars. Jerry Hall and Lou Griffith were assisting him.

Joseph F. Battley, President
National Paint, Varnish and
Lacquer Association
Washington, D. C.

Another reader

Gentlemen: We have recently organized a new industrial design office and would like to be considered for your free controlled circulation of METAL PRODUCTS MANUFACTURING.

Dana W. Mox
Dana W. Mox Associates
Park Ridge, Ill.



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A new Canadian plant for gl

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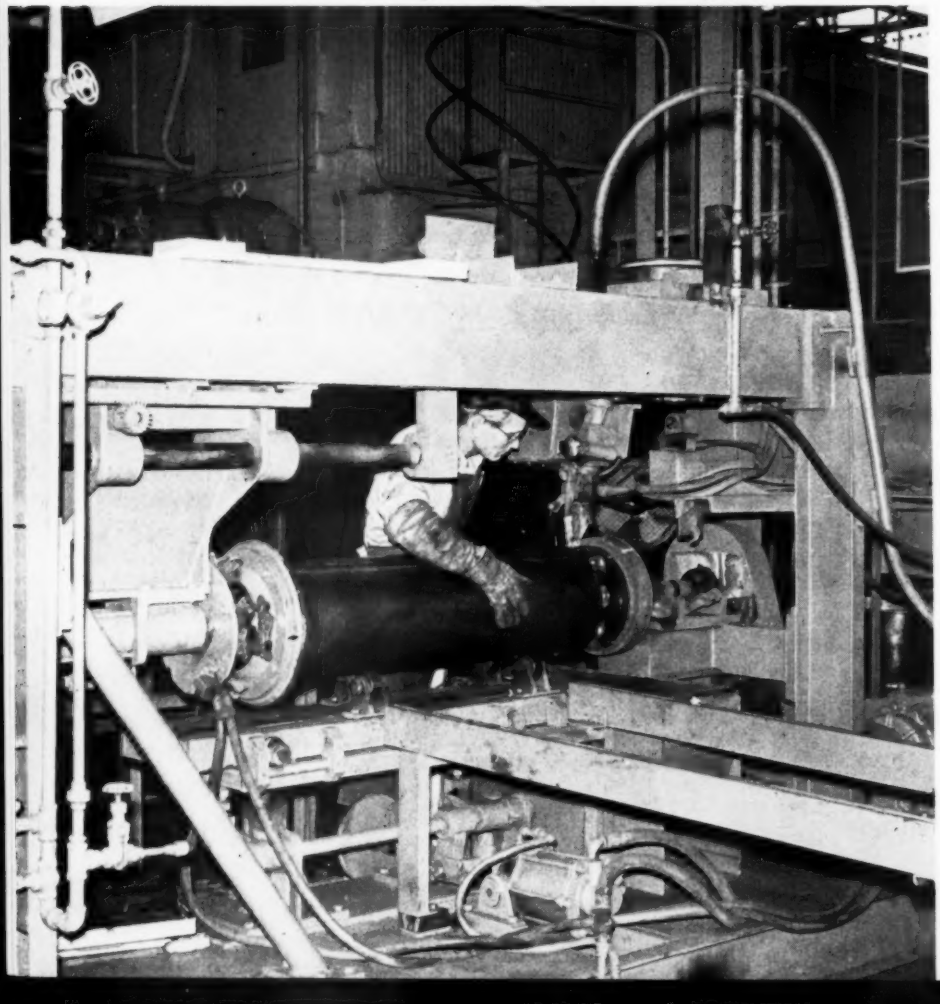
A NEW porcelain enameling facility for the "glass lining" of water heater tanks has been completed at the Hamilton, Ontario, plant of Rheem Canada, Ltd., the Canadian manufacturing affiliate of Rheem Manufacturing Company. The new plant began the manufacture of Rheemglas water heaters for both gas and electric operation.

Because of the well developed product Rheem manufactured in the United States at Sparrows Point, Maryland; Chicago and South Gate, California Rheem decided to invest in a fully equipped Canadian facility. In these three plants, the first of which was started in operation approximately four and a half years ago, use was made of advanced fabricating and glass lining techniques. *(See special Rheem section in January, 1956, issue of this publication covering the facilities of the U.S. plants.*

The water heater tanks are made of low carbon hot rolled steel, with drawn heads welded in place on the cylindrical shell. After proper surface preparation, the glass lining is applied and fired. The bottom head and flue constitute a separate sub-asssembly which is glass lined and welded into the shell to complete the final assembly of the tank.

In this new Canadian operation, shells are fabricated in much the same manner as in the three Rheem plants in the United States. The same sub-assembly techniques are used, essentially, prior to the glass lining operation. After the welded seam of the shell is ground smooth to prevent uneven coverage of the glass lining, shells and flues are grit-blasted as a means of removing mill scale and surface material and to provide an adequate "tooth" for application of the surface coating.

Pressing a head onto a tank body prior to welding. The top of the tank is pressed into place by a hydraulic ram, then is welded by a stationary overhead welding head. This is step (6) of 10-point fabrication program.



10-Point fabrication program

The main steps in the fabrication program for the water heater tanks are as follows:

1) Fabrication and punching the holes in the shell.
2) Rolling the shells on a true circle roll to form the cylinder.
3) Submerged arc-welding of the side seam on a stake welder.
4) Grinding of the side seam.
5) Expanding top and bottom — the two open ends of the shell.
6) Insertion of head. As the head is pressed on the tank body in a hydraulic ram, it is then welded by stationary overhead welding head.
7) Soap testing all welds with internal air pressure. The open end is plugged against a heavy sheet of rubber in a hydraulic ram. *(The shell is now ready for the enameling operation.)*
8) After the enameling, the water heater body, bottom and skirt are placed in a single machine for welding. Welding heat also fuses the interior enamel lining into a continuous glass coating at the juncture of the bottom and the body.
9) Welding of the flue to the head.
10) Second air test with the soap solution spray for checking.

Special coating materials automatically applied

After operation No. 7 in the fabrication sequence, the tank shell is ready for the enameling operation. A combination of commercial frits is specially designed to withstand the effects of varying water conditions.

The surfaces of the fabricated parts are prepared for coating by grit-blasting, using a steel grit. This procedure is used for the double effect of providing a perfectly clean surface for coating and to give an etched surface for

glass-lined water heaters

Hamilton, Ontario, combines and practices with the latest coating application and firing

maximum adherence. Blasting is done in a special blasting cabinet.

The booth where the glass coating is applied is in two sections: one tooled for spraying the flue and bottom assembly, and the other for spraying both the interior and exterior of the top and tank assemblies. The flue and bottom assembly is sprayed while the assembly rotates. The top and body assembly rotates in a cradle in a horizontal position while the spray guns, mounted on automatic extension arms, spray the interior. The exterior of the body receives a light fog coating from another automatic gun.

Following a trip to the drying oven, the bisque coating is removed from approximately ¼ inch inside the bottom of the tank body to provide metal-to-metal contact between the bottom and the body when welded.

New radiant tube furnace of "portable" design

The furnace used for firing the glass coating is a vertical, radiant tube unit of recent design and new to the water heater enameling field. *(See "Case history of a new type porcelain enameling furnace," December 1957,* MPM.*)*

Although loaded by conveyor, the furnace is a batch type with double doors at each end. These doors swing outward and are automatically operated with the opening controlled by limit switches.

The roof of the new furnace is of interlocking, floating construction which can be adjusted for high heat retention or for accelerated stack-ventilation, depending on requirements as indicated by ambient atmosphere and temperature of the plant.

Heat for the fusing of the bisque coating on the water heater tanks and flues has as its source a series of gas-fired, radiant tubes on both sides of the furnace. These tubes (24 in number) are 3¼" in diameter and made of a high nickel-chrome wrought alloy somewhat similar to the radiant tube arrangement of heat treating furnaces.

The tubes are controlled in two zones with the center line of the furnace dividing the zones . Each zone is individually controlled through the use of recording controlling pyrometers.

Ceramic coated tubes

One feature of interest to the porcelain enameler is the fact that the radiant tubes used in this installation and for similar application are coated prior to use with a high temperature heat resisting ceramic coating. At the temperatures utilized for porcelain enameling, this coating actually becomes soft, but it has been found that the ceramic coating greatly increases the alloy life expectancy. This is said to be particularly noticeable where protective atmospheres are employed for heat treating, in that the ceramic coating reduces the deteriorating effect of the atmosphere on the alloy — for example, the carburizing atmosphere which has a strong tendency to carburize the tubes.

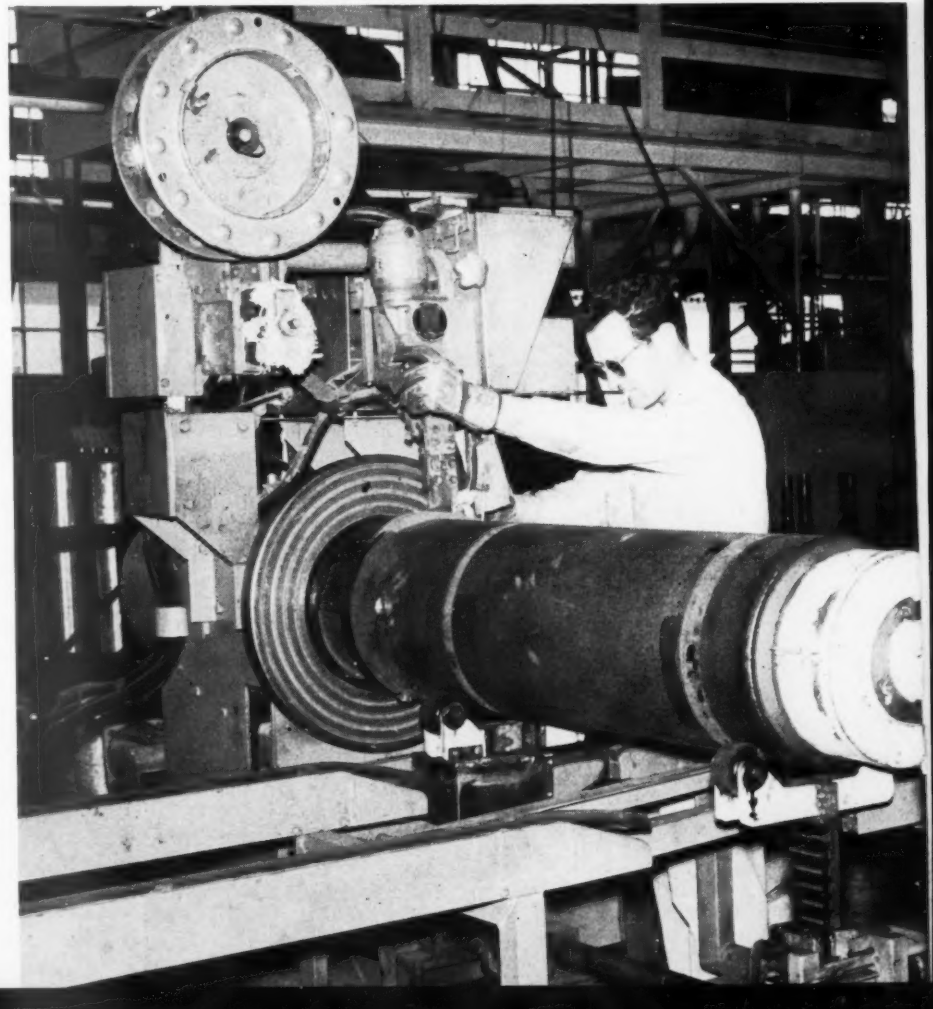
Burners outside the furnace feed directly into the radiant tubes and are accessible for service without close-down or interruption of production. Also, the burners are adjustable to provide heat input as required by the weight of the ware on which the glass lining is being fused.

The furnace is served by an overhead conveyor with special burning tools (hooks) provided for hanging the tank and flue assemblies from the conveyor.

Rheem engineers point out that the radiant tube furnace can be heated from room temperature to 1550 or

(turn to column three next page)

Fusing water heater body, bottom and skirt together in a single welding operation. Welding heat also fuses the interior enamel lining into a continuous glass coating at the juncture of the bottom and body.



Structural data on a typical radiant tube furnace

Instead of being built up in the users plant with firebrick, the furnace is delivered complete and ready for use. The furnace itself is a steel shell, which is lined with 2800° F. insulating firebrick, both for insulation and heat retention. Steel legs hold the furnace off the factory floor and prevent deterioration of the floor by excessive heating. No special foundations are required for this type of furnace in plants with conventional heavy duty floors.

Overall dimensions:
- Width — 8 ft. 7/8 in.
- Length — 13 ft.
- Height — 12 ft. 8 in.

Heating Chamber dimensions:
- Width — 2 ft. 2 in.
- Height — 6 ft. 1 in.
- Length — 11 ft. 6 in.

Lining:

Walls and floor: 9 in. first quality fireclay brick, backed up by 4½ in. of 2000° F. insulating firebrick and 4½ in. of block insulation.

Roof: Suspended arch type consisting of 7 in. of hard burned interlocking refractory shapes backed by 3 in. of insulating castable refractory.

Combustion Equipment:

Radiant tubes:
- Length: 9 ft. 3¼ in.
- Diameter: 3¼ in.
- Spacing (12 tubes to a side): 13 in.
- First two on each end: 12½ in.

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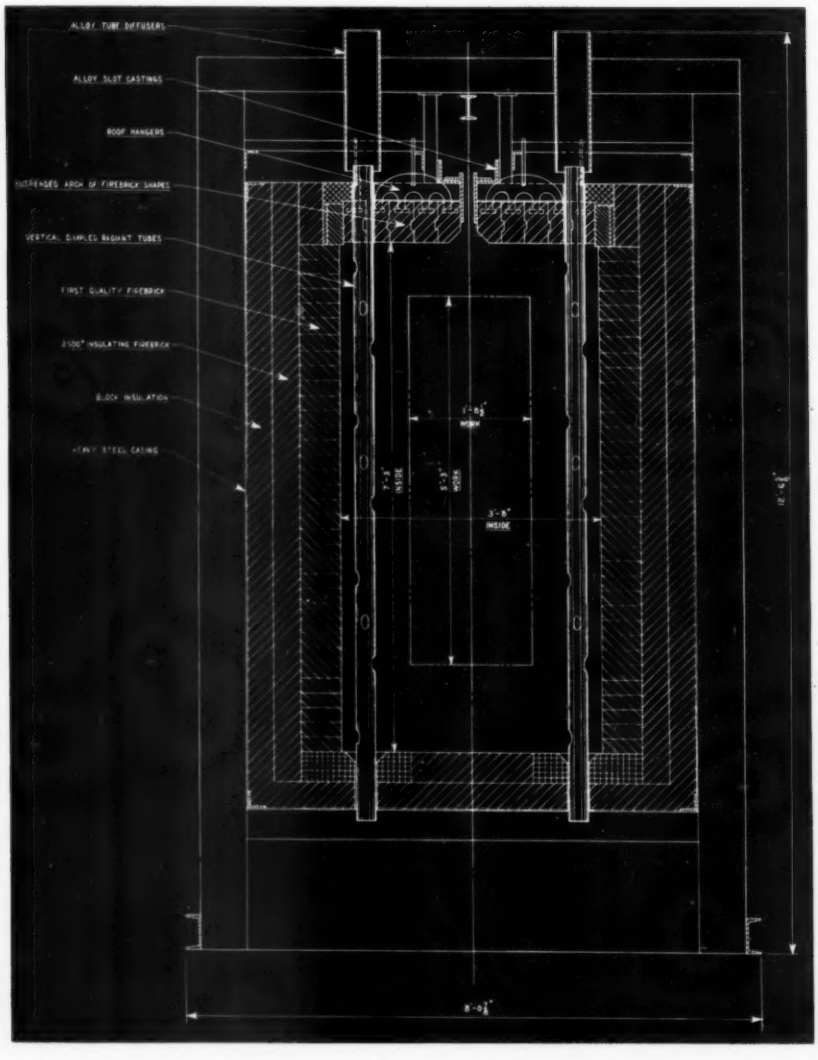


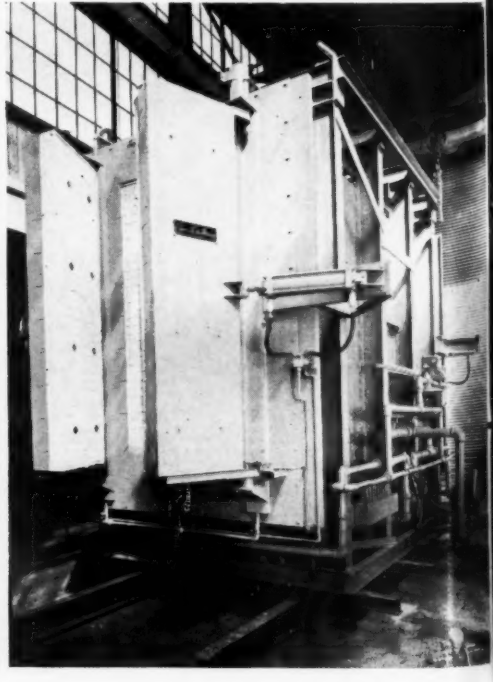
New Canadian plant-

1600° F. in 12 hours or less, and that it has a top temperature rating of 1800° F. when, as, and if it might be needed. They point out that, in addition to the ease and speed of varying the heat input, the new design makes it completely practical and economical to close down the furnace for long weekends or for plant-wide vacations. The radiant tubes in the furnace may be pulled out and replaced without interrupting continuous operation. In addition, whenever production requirements indicate, it is relatively a quick conversion to add additional furnace units to the one in operation. The complete furnace unit might be termed a "portable" installation, in that it may be moved to any other section of the plant, or it can be transported by rail from one plant location to another, if there were a requirement for this portability.

Soap spray inspection

As is indicated in the 10-step fabrication and testing program, all tanks are tested with internal air pressure at two points on the line. Soap solution spray is used in conjunction with the internal air pressure of 25 pounds per square inch for these tests.

The furnace used for firing the glass coating is a vertical, radiant tube unit of recent design and new to the water heater enameling field. Although loaded by conveyor, the furnace is a batch type with double doors at each end.



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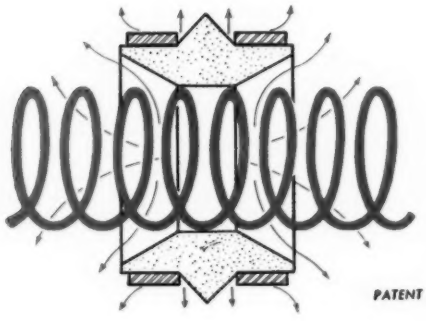

PATENT PENDING

Cross-sectional view of new TEP insulator and cross-bar design. More space for air circulation assures better heat dissipation, longer wire life.

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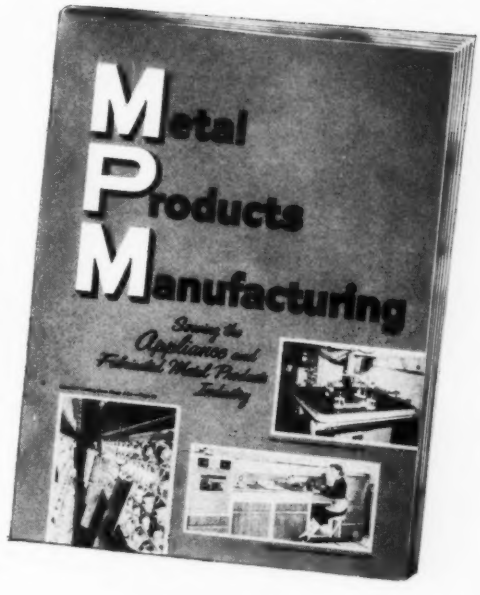

FEATURES

Philco's "Automagic" washer **HL-6**
by Edward G. Lipski, manager, laundry equipment engineering

Home laundry is an exciting appliance market opportunity **HL-13**
by Guenther Baumgart, president, American Home Laundry Manufacturers Association

Simplify controls, improve drive mechanism on Frigidaire washer **HL-18**
an MPM staff engineering feature

Future of the Home Laundry Appliance Industry **HL-24**
comments by executives of Home Laundry Manufacturers

New components, materials, and equipment for home laundry appliances **HL-28**

New coin-operated laundry appliances **HL-30**
new Maytag washer for commercial and institutional use

Presenting the latest home laundry appliances **HL-34**
photo presentation of current and 1959 models

Mrs. Home Laundry Queen Contest **HL-34**
3rd annual MPM photo contest to select queen for 1959

Fabric Softeners . . . Amazing Home Laundry Aids . . **HL-42**
a guest editorial feature

FROM THE EDITOR'S DESK

Our editorial policy discourages "special issues" and "special sections," as we endeavor to balance each issue of MPM editorially to meet the interests of our readers throughout the entire appliance and metal products manufacturing field. This balance must also meet the interests of top management, design engineers, purchasing executives, and key plant operating men.

Nevertheless, this annual salute to the Home Laundry Appliance Industry has become a "must" in the eyes of our editors as a result of our long association with this important segment of the appliance field and the whole-hearted cooperation which is accorded our editors each year in the development of this special feature.

Special thanks go to the engineers of Philco and Frigidaire for their close cooperation in the development of engineering features on their '59 line. We owe special thanks to Maytag for advancing their release date on coin-operated equipment in order that we might include this feature in the special section. We have had excellent teamwork between the manufacturers, the suppliers, and our own editors, and this offers the best opportunity to say "thanks" to everyone concerned.

DANA CHASE
Editor & Publisher

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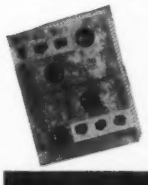

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Philco's "Automagic" washer

a four-year development was crowded into an eighteen months program

by Edward G. Lipski • MGR., LAUNDRY EQUIPMENT ENGINEERING

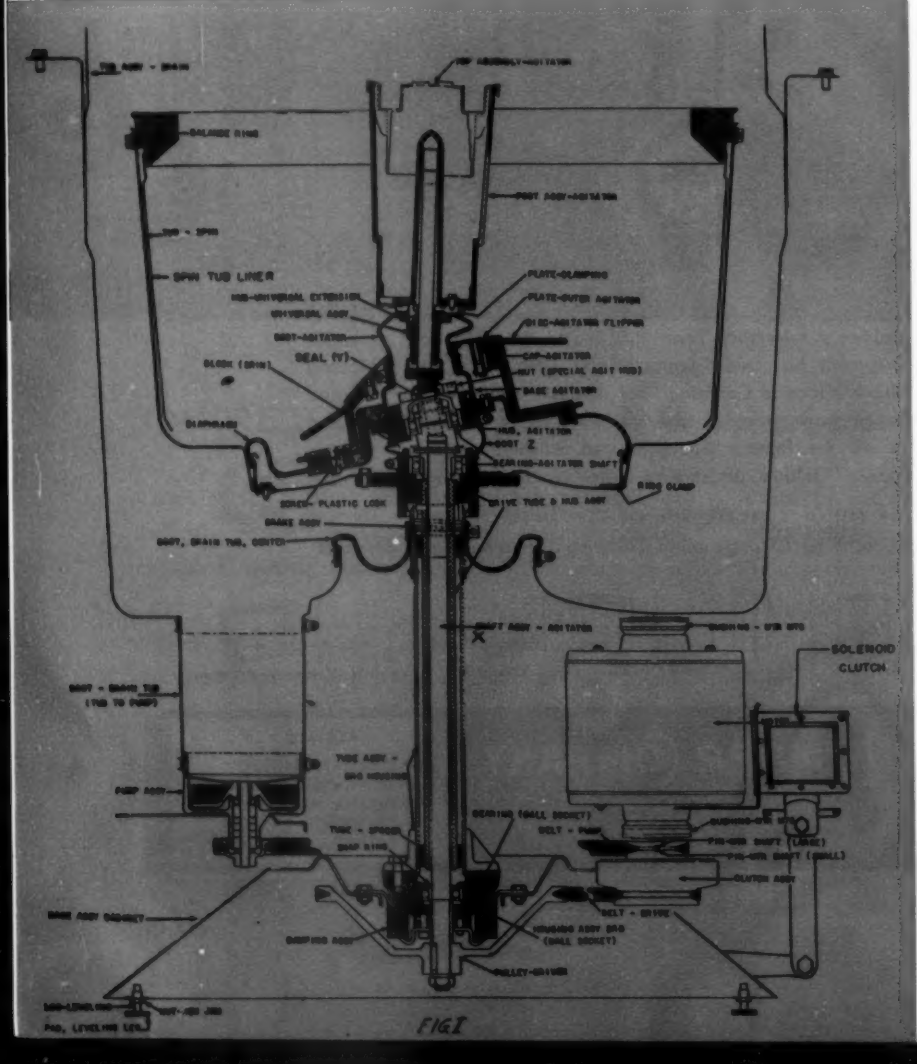


FIG I

MPM EXCLUSIVE FEATURE

The obvious approach to developing and designing the new automatic washer was to start with the well known and proven "Ball Point Balance" suspension. Briefly, this is a suspension evolved about the principle of overdamping a suspended system in such a manner as to progressively decrease the input torque or power available to accelerate the spin basket; thereby lowering the terminal speed. This is accomplished by coupling a very accurate clutch to the motor. Carried to an extreme, the terminal speed continues to decrease with the increase in damping until eventually there is insufficient power available to accelerate the spin basket through the critical frequency of the suspended system. This limits the excursion (amplitude) to a point where it never strikes the retainer, regardless of the amount of unbalance. (See Chart 2).

The next approach was to establish the parameters for the desired washing action: *1. Simplicity, 2. High Performance, 3. Large Capacity, 4. Ability to wash all types of loads, and 5. Low power consumption.*

To obtain simplicity, it was necessary to depart from the conventional means of washing clothes by using the to-and-fro agitator. Only in this way could we depart from a transmission with its inherent complexity of gears and bearings. By simplicity, our aim was to eliminate service problems and to gain initial economy in production. It was decided to pursue the mono-directional washing principle where the washing speed would be similar to the speed used for centrifuging the wash water from the clothes.

Study of the conventional to-and-fro agitator principle indicated that the washing action was not continuous in that, every time the motion of the agitator was reversed, the washing action would literally stop. Therefore, to make the washing action more effective, it would be desirable to eliminate these pauses. Chart 1 shows a typical wattmeter recording of the conventional vs. the new principle washing action. The lower wattage input is also a good indication of less wear and tear on clothes. Since the water-detergent solution is the accepted means for washing clothes, it was decided to make better use of water action and thereby minimize the harsh action of a reversing blade.

A study of Fig. I is indicative of the simplicity obtained when conventional spring-damping systems and transmissions are eliminated.

High frequency action (at least 10 times conventional) permitted high performance in washing and rinsing without sacrifice of wear and tear qualities (evident by Chart 1). Allowing the clothes complete freedom within the

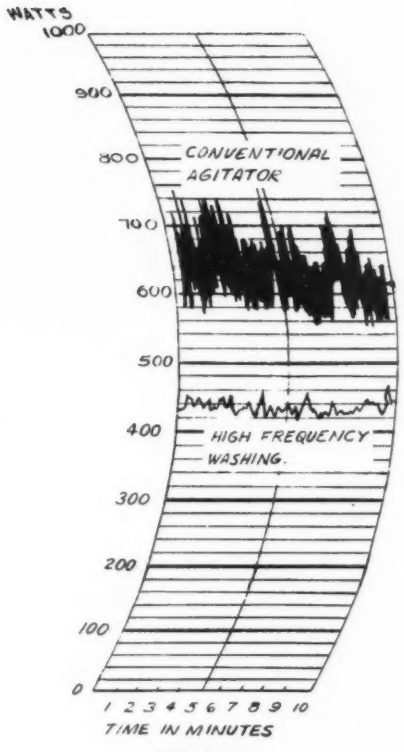
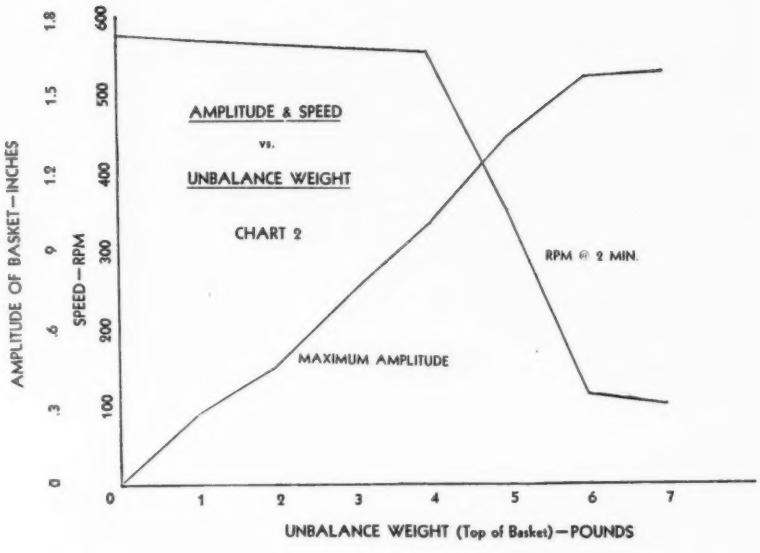


CHART 1



wash-basket rather than limiting to three zone (conventional three-blade agitator) permitted the highest capacity even with large items (example: a seven-sheet load).

The important principles of good washing action

It was exceedingly important that all the principles of good washing action be maintained, such as: *1. Flexibility, 2. Abrasion, 3. Impact, 4. Chemical action, 5. Turnover,* and *6. Non-tangle.*

The major deterrent in previous attempts in the use of mono-directional washing was the skirting of large objects (sheets, tablecloths), over the washing mechanism. This was avoided by extending the mechanism well above the washing water level.

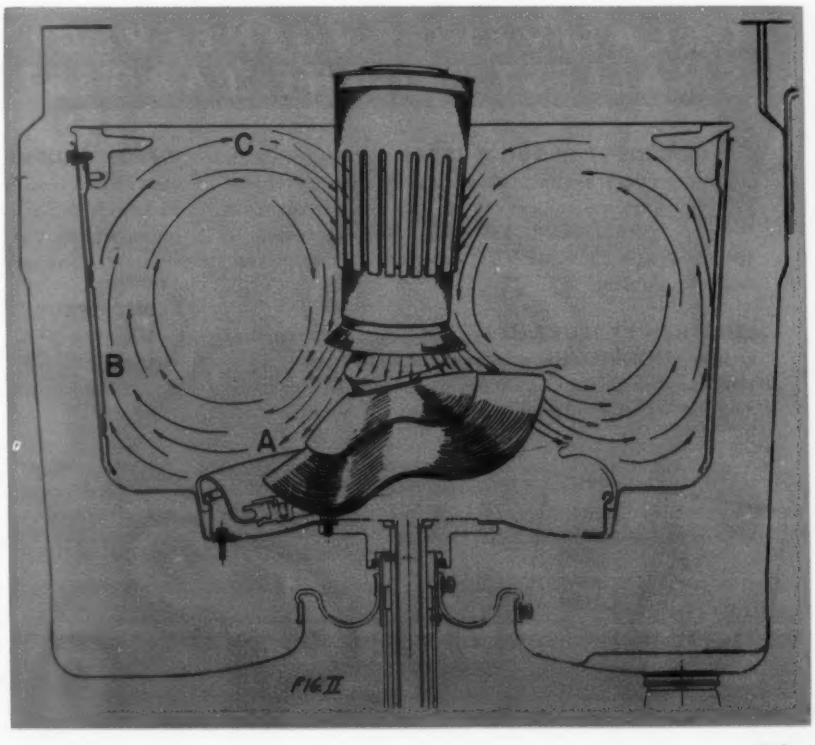
Description of washing action

The washing action can be briefly described as follows: (See Fig. II)

The clothes in the washing solution are pulled down into the area "A" where they receive sharp, rapid thrusts (impact) from the water action set up by the flexible flipper. The momentum tends to push the clothes toward liner "B" where the clothes receive flexing and abrasion in their attempt to reach area "C" — "C" is a temporary void in the upper region created by the pulling action (results in turnover) of the high frequency agitator. The flipper action is repated 600 times per minute. To further expose more of the fabric to the uniform washing action, the clothes are allowed to advance in a clockwise direction, forming a toroidal path within the washing basket. This freedom of travel prevents tangling and aids turnover of wash load. By placing a perforated liner between the basket and the clothes, additional water action is obtained as spurts of water enter and leave the area between the liner and the basket — in effect, adding a thousand little helpers to the principle washing action.

The addition of the perforated liner added considerably to the rinsing action by allowing a heavy sediment to leave the bottom of the basket by passing between the liner and the basket during the extraction cycle. The upper balance ring construction permits the light soil to leave by passing over the clothes during overflow rinse and the extraction cycle. The extraction and rinsing efficiency was increased since wash water is not required to pass through the clothes to leave the basket. (See Fig. III)

To maintain constant recirculation and filtering of the washing solution



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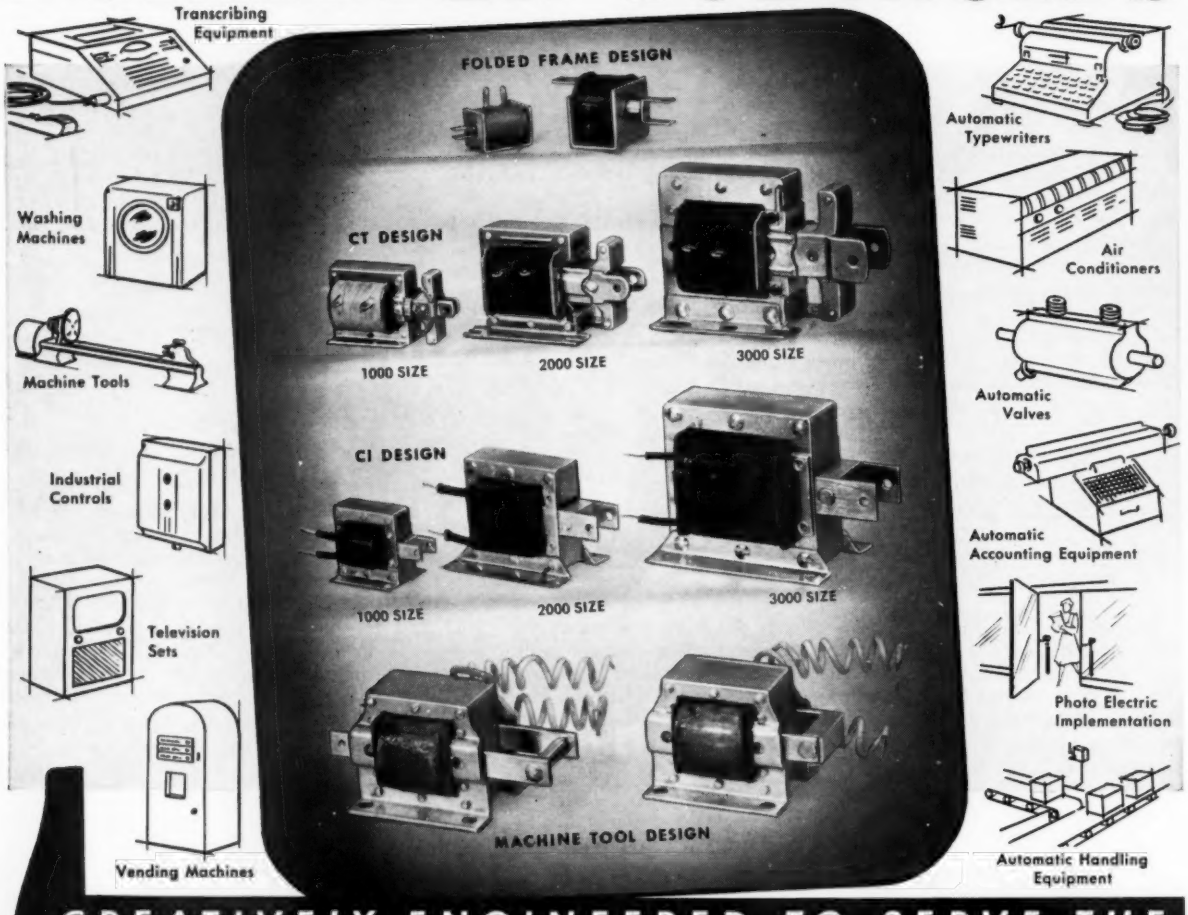

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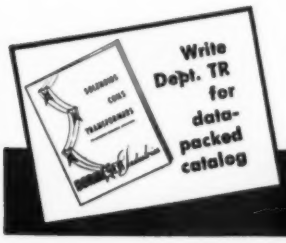

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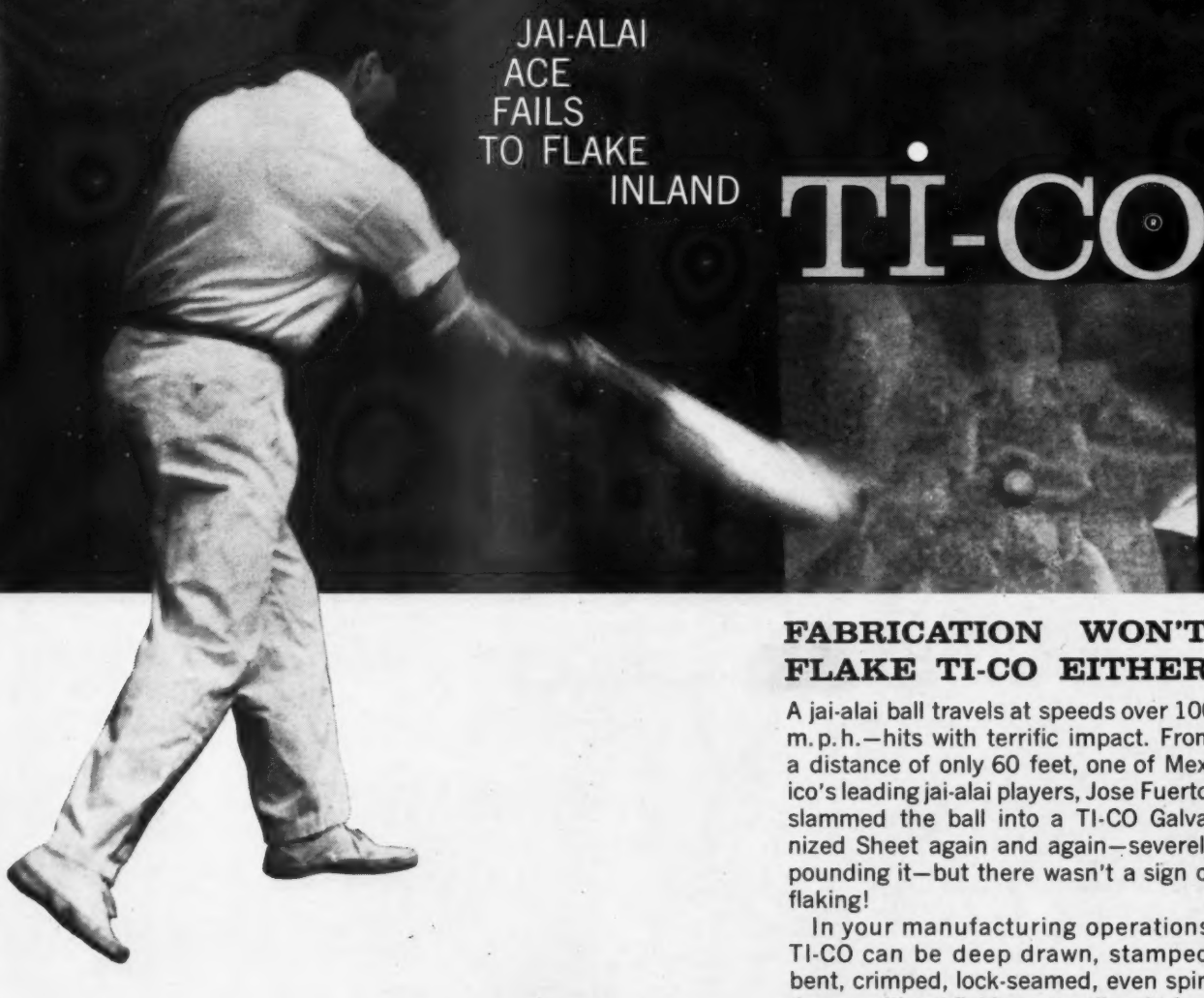

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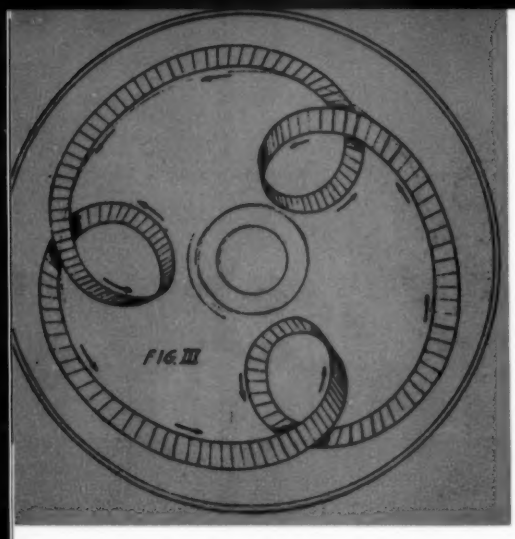


within the washing medium, the upper portion of the mechanism was modified to house a triple duty dispenser. A new filtering system had to be devised in addition to a detergent and rinse dispenser. To accomplish this, a circulating pump was designed "without any rotating parts" to completely circulate the water approximately six times a minute within the basket.

Dispenser operation

The dispenser operation is as follows: (See Fig. IV)

Liquid or powdered detergent is added through the opening "A," when the condenser cup "D" is removed. The detergent then drops into cup "B." A rinse conditioner is added into the conditioner cup "D" which is placed into opening "A." At the beginning of the wash-fill cycle, the detergent is kept in the cup and away from the clothes until the entering water has reached the leved C where it begins to dissolve. Entering water, upon reaching the selected washing level, starts the washing mechanism which places the detergent into solution by the washing action. This washing action immediately starts the pumping action which tends to flush out the solution from the cup.

The washing action continues, with the rinse conditioner remaining in the conditioner cup, thoroughly aereating the washing solution and insuring maximum use of the detergent. After the wash cycle, the extraction of the wash water begins slowly extracting the wash water from the clothes and centrifugally ejecting the rinse conditioner from the cup into the wall "E" where it is held centrifugally until the wash-spin cycle is completed. Thereupon, the conditioner drops from the wall "E" into the cup "B" while the rinse cycle begins.

Again — the conditioner is kept away from the clothes until a proper water level is obtained, whereupon it is dissolved and placed into solution. Meanwhile, the water is being circulated through the lint collector so that after the final spin extraction cycle the housewife has simply to remove the triple duty dispenser and wash away the lint. The triple duty dispenser is removable, permitting access to all components for easy cleaning.

The center of the agitator has now been transferred into a very busy area by placing the important role of dispensing detergent, dispensing rinse conditioner and filtering or delivering lint away from the clothes.

The removal of noise was an objective and was easily accomplished by the elimination of the conventional spring dampers and transmission with its inherent gear rack noise. The noise level was found to be satisfactory for kitchen installations.

The cabinet is of wrap-around construction, and is manufactured by a completely automated line capable of producing three complete cabinets per minute. The automatic line was integrated with a new washer-dryer cabinet line so that either a front or a top loading cabinet could be obtained by merely pressing a button. Changeover from one cabinet to another could be accomplished in the time necessary for the line to clear itself — approximately 3 minutes.

"One pushbutton" control system

To complete the design, a new control system was developed. The result — a really automatic "one pushbutton" system. A keyboard was so designed that the depression of any one key would do the following: *1. Select proper wash water temperature, 2. Select proper washing action speed, 3. Select proper rinse water temperature, 4. Select proper spin speed, 5. Select proper length of cycle, and 6. Automatically start the machine.*

Fig. V and VI shows the variations available by selection of keys and a typical indication. A flexible timer control complete with a line cycle indicator was added to allow complete flexibility to the housewife. If she chose not to use the automatic cycle, she could control the machine by shortening or skipping any portion of the cycle.

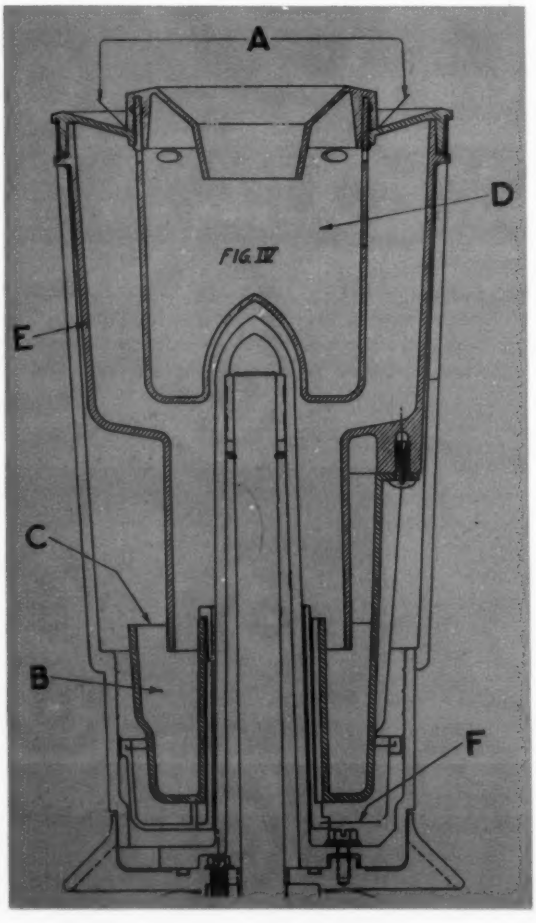
The new Philco automatic washer was designed to offer *flexibility* where the housewife could control the machine or offer complete *automaticity* where the housewife has only to add clothes — add detergent and rinse conditioner — and then press the key and the machine would do the rest automatically.

All the controls are located in a backsplash mounted on the top in such a manner as to offer complete front servicing. The complete machine was designed with the serviceman in mind and the results are readily evident (See Fig. VI.)

Washer Cycle Operation

The construction of the washing machine is such that the suspended system is mounted to the base by means of the ball damper assembly. The motor and pump likewise are mounted to the base. The motor assembly is spring mounted to compensate for the oscillation of the drive shaft, and to permit proper tensioning of the V-Belt. A centrifugal clutch attached to the motor shaft limits the torque output and permits the start winding to drop out before the motor delivers any torque. The motor is a 1725 RPM, 1/3 H.P., split phase reversing motor.

Washing Cycle — Selection of the washing cycle immediately calls for water to enter the machine and upon reaching the selected water level, a



portion of the fill water acts to create pressure in the air chamber which in turn, activates a pressure switch. Only after the switch has been activated does the wash cycle begin by energizing the motor in a clockwise direction. Clockwise rotation of the clutch utilizes the clutch weights in a snubbing direction, thereby adding approximately 30% more to the torque output. This added torque is necessary to insure the proper wash speed for any load up to 10 pounds of clothes. The pulley-belt coupling reduces the speed of the drive shaft to 600 RPM. The rotation of the shaft causes vacilation of the flipper base because of the bearings mounted angularly to the shaft. Vacilation of the specially designed flipper asembly produces the desired high frequency washing action.

A spring-type brake spring prevents the rotation of the basket during the washing cycle. The angular action on the two bearing housings in a clockwise rotation is such as to continually separate them from the wedge block. This results in the wedge block continually slipping in an effort to catch up with the wedge.

Rotation of the triple duty post is prevented by a specially designed coupling which allows the bearings in the post to follow the axis of the rotating upper shaft assembly — resulting in a conical oscillating type action. This action was used to create a pump within the washing basket. The wash water is pumped through the slots in the post and through the bottom where a screen is placed to filter the lint from the wash water. The base with the flipper assembly is likewise prevented from rotation by the flexible metaxalloy tub bottom.

Extraction Cycle—The control timer automatically advances the machine into the spin cycle. A pause period is planned in the timer sequence to insure complete stoppage of the motor clutch assembly prior to reversal of the motor rotation.

Counter-clockwise rotation of the clutch assembly allows the clutch weights to contact the output drum in a slipping direction, thereby actually controlling the torque output of the motor. Counter-clockwise rotation of the shaft "X" causes the bearing housing to contact the wedge block, thereby locking the washing action to the spin basket so that both assemblies can be rotated simultaneously. The reaction on the spin brake frees the spin basket from the spin tube housing and permits rotation of the basket.

Seals and boots were designed as additional precautions to keep moisture from the ball bearings which are individually sealed to keep lubrication in and moisture out.

Two Speed Operation—The greater torque output necessary for the washing action rather than the accurately controlled low torque used in spin made it necessary to depart from the conventional use of the two speed motor. Two speeds were accomplished by a solenoid operated mechanism which would axially load the drive sheave on the clutch drum. This axial load coupled with the belt tensioning spring place the belt in an environment such that the belt would change the pitch diameter of the drive sheave in an effort to keep all the forces in equilibrium. The result — 600 or 450 RPM of the mechanism depending on whether or not the solenoid was energized. Operation of the solenoid was necessary for low speed operation, thereby insuring normal operation in case the solenoid became inoperative.

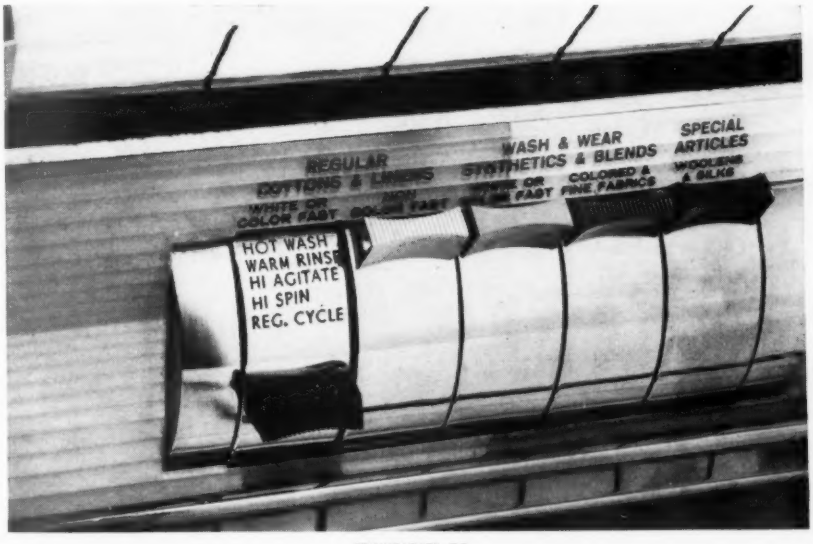


FIGURE V

Automatic control system

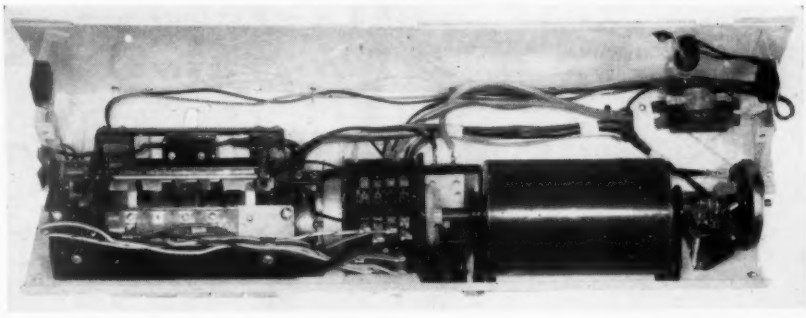
To completely automate the washing machine, a switching system was developed which controlled the wash water, rinse water, washing speed and spin speeds by conventional electric switches. The selection of cycle (normal or delicate) was accomplished by shifting gears in the timer. This mechanical linkage would also register the selected cycle (regular or synthetic) in the indicator window. To limit control operation to "just push the button" a hold-in circuit was added, which would energize the timer through the off position to automatically start the washer. The hold-in relay is taken out of the circuit during the final extraction so that the timer will stop the washer in the off position.

Water level, depending on the amount of clothes to be washed, was left to the consumer's discretion. The control permits selection of full, medium and low with fill stop for any other water level desired.

The key board was designed so that the depressed key would indicate what was selected — see Fig. V. Depression of any key will immediately clear any previous cycle.

Clearly defining the desired features and assigning complete responsibility accordingly, resulted in the successful completion of this major project. The results were and could only be accomplished by team effort and credit accordingly goes to the design engineers, the test engineers, the draftsmen, the model makers, George Field's Consultant Group, the many outside suppliers, and the manufacturing organization. All acted way beyond normal expectations and thereby made it possible to condense a normal 3-year project into an 18-month reality.

FIGURE VI



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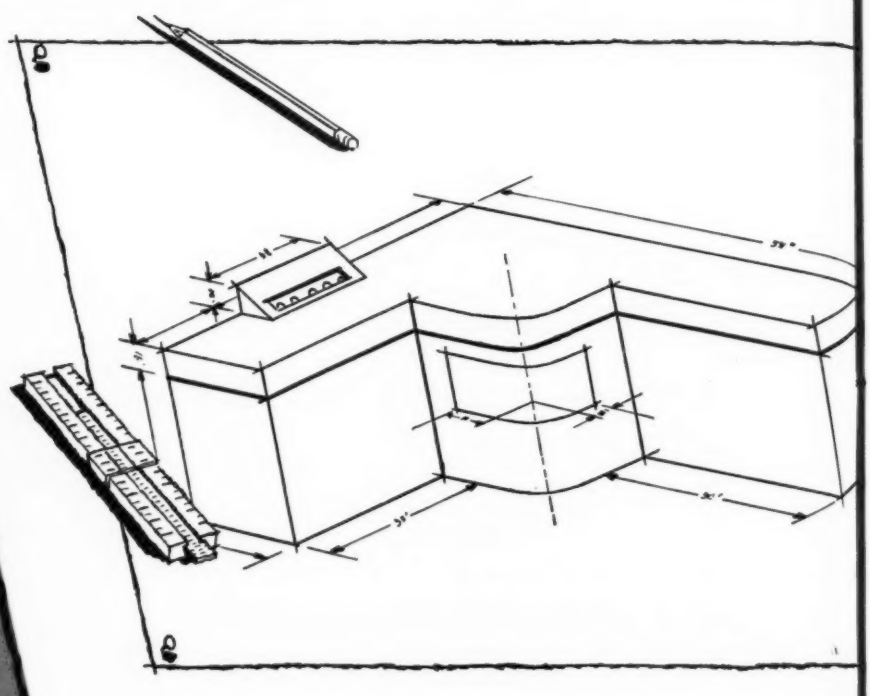

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Home laundry is an exciting appliance market opportunity

by Guenther Baumgart • PRESIDENT, AMERICAN HOME LAUNDRY MANUFACTURERS' ASSOCIATION

MPM EXCLUSIVE FEATURE

The appliance business is big! The retail value of home laundry appliances alone is in the neighborhood of a billion and a half dollars and between five and six million units annually! These home laundry appliances are second only to homes and automobiles in importance to the consumers who buy them. Needless to say, a share of this big market is well worth going after.

In addition to being a big market, home laundry appliances are enjoying a market which is gaining in per cent of the total appliance field. Before 1950, home laundry appliances accounted for 32 to 34 per cent of unit totals. Currently, home laundry appliances are about 40 per cent of the total.

The potential for future sales is for increasingly-greater and faster gains. There are many different dimensions in which strong growth is evident, and growth in any one dimension tends to multiply, rather than merely add to, growth in the others. These factors have led industry market researchers to predict that factory sales of home laundry appliances will jump from the present levels of five million units per year to as high as seven, eight, or even nine million units annually by 1967. The predicted increase is continuous with the big jumps coming around 1960, as you might expect.

Dimension One: There exists in the market as it is today a great unsold potential.

1. There are 48.6 million wired homes.
2. 88.5 per cent of these are homes which have washers in them. These families do their own laundry.
3. However, only about 35 per cent of them have *automatic* washers, a relatively-new product which came into importance after World War II. There are still 2/3 of all wired homes which need an automatic washer.
4. About 14 per cent of these homes have automatic clothes dryers. Consequently, owners of 41,950,000 wired homes still do not own dryers. Most of these home owners do their own laundry. Many of them use an automatic washer, but still hang out their clothes! If the industry could boost dryer sales to two million a year, that market alone will last for the next 20 years. The dryer market potential for our industry is there.

Dimension Two: New-family potential is another important consideration.

Dr. Philip Hauser of the University of Chicago, and a former director of the United States Census, has said, "You can see now that what you have as a business potential in part depends upon what the birth rate was a generation ago. Marriages are now decreasing because the birth rate decreased in the

COMPARISON OF HOME LAUNDRY* SALES WITH OTHER MAJOR ELECTRICAL APPLIANCES**

Unit Sales and Retail Sales, Dollars

	1957		1956		1950		1948	
	Units	Retail Value	Units	Retail Value	Units	Retail Value	Units	Retail Value
Home Laundry	5,418,000	$1,362,735,000	6,232,200	$1,502,945,000	5,000,280	$ 851,074,440	4,335,300	$ 818,674,000
Other Appliances	8,430,000	2,474,200,000	9,383,000	2,753,000,000	10,340,900	2,576,660,000	8,394,630	2,062,833,000
TOTAL	13,848,000	$3,836,935,000	15,605,200	$4,255,945,000	15,341,180	$3,427,734,440	12,729,930	$2,881,507,000
Home Laundry	39%	35%	40%	35%	32%	25%	34%	29%
Other Appliances	61%	65%	60%	65%	68%	75%	66%	71%

*Home Laundry Appliances Include: Combination washer-dryers, automatic and semi-automatic washers, wringer and spinner washers, electric and gas dryers, and ironers.

**Other Major Electrical Appliances Included: Air conditioners, refrigerators, freezers, standard and built-in ranges, dishwashers, and water heaters.

Source: *Electrical Merchandising*, January, 1958

'30s as a result of the depression. Marriage rate (now) of 1.4 million annually is probably at the bottom . . . it will be on its way up from now on which will reflect the increase of the birth rate toward the end of the '30s. So, for example, by 1960 you can expect new marriages at about the rate of 1.5 million a year, and by 1965 at 1.7 million a year, and by 1970, 2 million a year. New marriages are an important source of market for your particular commodities."

Dimension Three: The rising popularity of automatic wash-and-wear garments will have a great effect upon the home laundry appliance industry.

Both the existing market potential and the new family potential are multiplied by the terrific opportunity which is offered in the current promotion and publicity being given to automatic wash-and-wear. For example, the entire Eleventh National Home Laundry Conference presented by this industry was devoted to the topic "Wash and Wear—Fact or Fantasy!." Consumer, trade and business magazines, and newspaper articles since have been using a great deal of very gratifying space in text and pictures explaining what truly automatic wash-and-wear is, and how it works.

Look at the opportunity to sell a *complete* home laundry because automatic wash-and-wear is strongly dependent upon dryers. Look at the opportunity to sell new and modern home laundry equipment to replace older machines, even older automatics, because the delicate fabric cycle and the cool-down period are features which have been introduced recently.

Dimension Four: The rush to suburban living, and the do-it-yourself trend, is growing.

This is another multiplying factor applied to all of the above. We all know of the trends toward the suburbs. Examples like Chicago are typical in which the central city population increases a percentage point or two between census periods while the surrounding suburbs increase from 13 to 25 per cent. Coupled with this is the sharp decline in the number of maids available at a price the suburban home owner can and is willing to pay, and the fact that Mr. and Mrs. Suburb are ardently engaged in that very fascinating enterprise, do-it-yourself.

Dimension Five: Technological progress.

Much is said of planned obsolescence in the appliance field. We believe that this does not apply to the home laundry field for the simple reason that very real developments and innovations are occurring constantly. The progressive obsolescence occurs well enough, but it occurs because significant new things are being created.

Twenty years ago, the only home laundry appliances were a simple wringer washer and an ironer or mangle. The automatic washer and clothes dryer were innovations which have caused a household automation revolution.

The combination washer-dryer, putting together the features of an automatic washer plus a clothes dryer, is still another step in this vigorous process. Further developments will, we can all see, be in the areas of controls. For example, the shift from single cycle to multiple cycles. Developments will also continue in dispensers. Certainly, also, there will be innovations in washing chemicals, detergents, water softeners, fabric softeners, water conditioners, bluing, starch, and all of the other laundry aids which enable the modern housewife to do a modern job, and an effective one, on the newly-developed fabrics and the old fibers treated with new finishes.

Dimension Six: The replacement market is just coming into its own. Our studies show that the average life of washers is somewhere in the neighborhood of eight or nine years. It was just about eight or nine years ago in the late '40s and in 1950, that the rapid rate of sales growth of both automatic washers and dryers was first taking place. These machines, and the millions which have been sold since, are becoming potential for replacement. The replacement market is a significant and important one, and one well worth aiming at.

What should our industry do in order to capture the market?

First, and probably most important, is the now-bewhiskered statement that the market is there but you have to go out and sell it. Just because this thought is old and oft-repeated does not mean that it is obsolete. It is more acutely true now than ever before.

Second, the home laundry appliance

HOME LAUNDRY APPLIANCES UNIT SALES 1945 — 1957

			Washers			Dryers			
Year	Total Sales	Combinations	Automatic & Semi-auto.	Wringer & All Other	Total	Electric Dryers	Gas Dryers	Total	Ironers
1945	183,735				179,142				4,593
1946	2,152,336				2,023,981	1,908	1,831	3,739	124,616
1947	4,212,762				3,787,836	37,713	20,364	58,077	366,849
1948	4,590,100		698,925	3,421,464	4,120,389	72,940	15,159	88,099	381,612
1949	3,363,663		859,665	2,118,780	2,978,445	80,538	25,189	105,727	279,491
1950	5,026,221		1,645,081	2,665,937	4,311,018	250,977	67,511	318,488	396,715
1951	4,083,837		1,532,470	1,794,766	3,327,236	348,658	137,997	486,655	269,946
1952	3,991,408		1,583,658	1,590,930	3,174,588	453,933	160,744	614,677	202,143
1953	4,311,330		1,999,568	1,460,828	3,460,396	537,921	158,547	696,468	154,466
1954	4,474,168		2,352,800	1,137,412	3,490,212	661,603	236,148	897,751	86,205
1955	5,702,859		3,082,451	1,154,104	4,236,555	1,016,188	368,206	1,384,394	81,910
1956	6,005,051	102,406	3,227,794	1,117,054	4,344,848	(1,167,345)*	(434,365)*	1,499,304	58,493
1957	5,067,690	175,841	2,722,047	867,529	3,589,576	868,557	392,085	1,260,642	41,631

*Includes 102,406 combinations because separate data are not available.

industry must contribute toward educating the new market that will be coming up in the early '60s. Today's junior high and senior high school girls are our most important future customers. This future market must be educated to the advantages of automation in the home laundry.

Third, each service call is loaded and each one must be perfectly handled, not only for each company's individual sake, but for the whole industry! Many customers buy their home laundry appliances as much on where they can get continuing good service at a reasonable cost, as on any feature that is visible in the product or demonstrable on the sales floor.

Fourth, we must not overlook the need, importance, and sales potential for *all* home laundry appliances. Wringer washers still account for over 850,000 units a year. Entire communities and economic levels are responsible for a large number of customers preferring this style machine. We all know it does an excellent job and that washing habits learned from our mothers and even grandmothers were based on such a device.

By the same token, the automatic ironer is still a much needed appliance in today's home, although sales of this appliance are not what we would like them to be. The rise in popularity of wash-and-wear garments is dramatizing further the desire on the part of homemakers for fine finish for their *entire* laundry. Even the best wash-and-wear garments require at least some touch-up ironing and periodic resetting of pleats and creases. Homemakers are going to iron, regardless of whether by hand or machine. It's easier by machine. Therefore, the automatic ironer market is still a challenging opportunity for our entire industry.

To summarize, home laundry is an exciting and economically-important appliance market opportunity. It is big in its own right, it is gaining against the appliance field, and its new sales potential is terrific.

There is an unsold market in the field right now. There are many new families which will be formed especially in the early '60s. Automatic wash-and-wear portends great growth and merchandising opportunity. Suburban living and do-it-yourself trend is in the industry's favor. The home laundry appliance industry is favored with real innovations and inventions instead of simulated obsolescence, and the replacement market is coming into its own.

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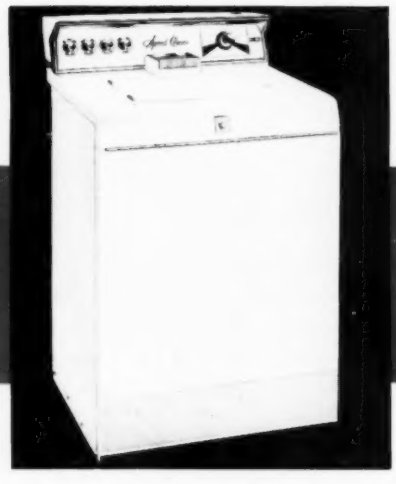

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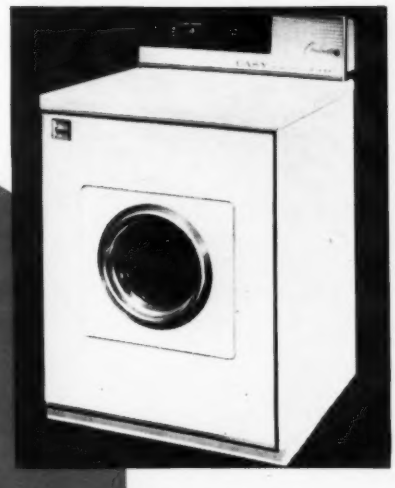

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E. P. Van Scoyk, assistant chief engineer, and Charles Billings, project engineer, are enthusiastic about the new drive and simplified controls.

engineering details of operation and construction of the new "top of the line" washers

MPM EXCLUSIVE FEATURE

Simplify controls, improve drive mechanism on Frigidaire washer

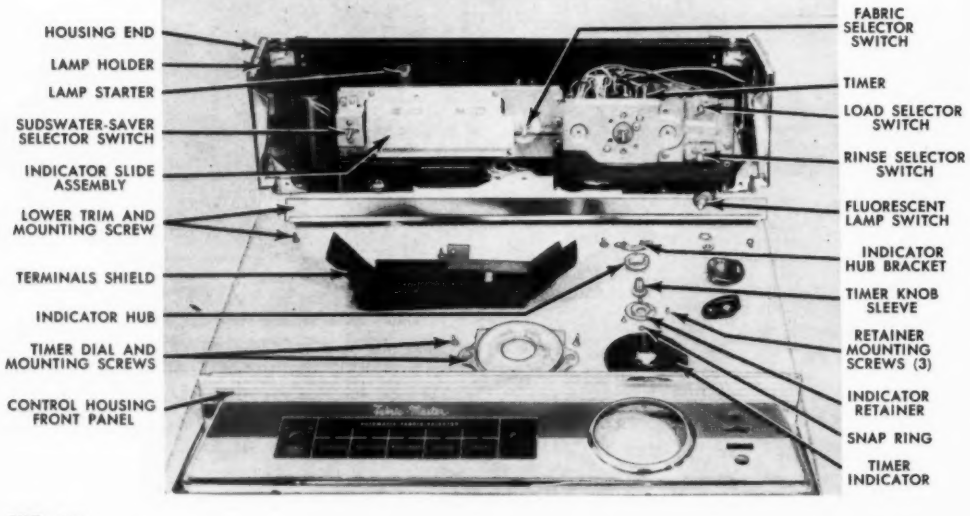
AN MPM STAFF ENGINEERING FEATURE

NEW CONTROLS incorporated into the Custom Imperial model of the 1959 Frigidaire washer line could provide truly automatic laundering of the wide variety of fabrics making up the present day family wash.

Frigidaire engineers designed the control system on the new washer with the thought that the homemaker knows, basically, three things about the load she is about to put into the washer. These are: (1) the type of fabric, (2) whether the soil is heavy, light, or normal, and (3) whether the load is normal or small.

In addition to the simplified method of setting the controls on the washer, the transmission, motor, and pump assembly have all been redesigned. According to Frigidaire engineers, in previous years, two separate mechanisms were utilized — one which was called the "Pulsamatic" and one which was called the "Unimatic." The Pulsamatic had a 7/8-inch stroke and 630 strokes per minute. The Unimatic had 330 strokes per minute, and a 1¾ inch stroke. The new mechanism incorporates the best features of each into a new transmission assembly. The new transmission, motor, and pump assembly combines the simplified mechanism common to the former Pulsamatic and the washing action common to the former Unimatic mechanisms. That is, a 1¾-inch stroke at 330-strokes per minute is utilized in the new mechanism. The new mechanism has parts comparable to the simpler parts of the Pulsamatic mechanism; yet provides the clothes handling ability of the previous Uni-

FIGURE 1



PROGRAM FOR FABRIC SELECTOR

Fabric Selector Setting	Wash Temp.	Rinse Temp.	Agitate Speed	Spin Speed	Load Selector Cycle Length**	Typical Load	Soak Cycle
Regular Whites	Hot	Warm (Cold)*	330	850	Normal	Shirts Sheets Pillow slips, etc.	Extra Dirty (Pretreatment)
Regular Colors	Warm	Warm (Cold)*	330	850	Normal	Socks, Jeans, Dresses, etc.	Extra Dirty (Pretreatment)
Wash & Wear	Warm	Cold	330	330	Small	Syn. Blends 100% Syn. Treated Cotton, etc.	No use
Delicate	Warm	Cold	220	330	Small	Lace Curtains Fine Lingerie, etc.	No use
Special	Warm	Warm (Cold)*	220	850	Small	Chenille Bedspreads, etc.	Woolens (Repeat for Rinse)

*Optional Cold Rinse provided by separate Rinse Temperature Control (COLD Setting).
**Cycle Length controls Wash, Rinse and Spin periods only. Fill length is controlled by separate Load Selector with NORMAL and SMALL Settings.

TABLE I

FIGURE 2

matic mechanism. Important, also, is that the new Multimatic mechanism, by its design, allows the addition of external driving parts for the various agitator and spin speeds desired.

Load, temperature, and speed selection

The Custom Imperial models WC1 and the WC1R provide selection for wash and rinse water temperatures, agitate and spin speeds, and types of wash loads. Wash and rinse water temperature selection, mechanism agitate and spin speed selection, and length of agitation and spin periods can be performed automatically by one control, Figure 1, which is indexed to a fabric program selector appearing on the control housing front panel. The control is set by the user for the type fabric being washed, and the selection is then done automatically in accordance with Table 1. As an example, the setting of the program selector for "Regular Whites" will automatically produce "hot" wash water temperature, "warm" rinse water temperature, an agitate speed of 330 strokes per minute, a spin speed of 850 revolutions per minute, and a normal length cycle of the timer.

The operations resulting from using the automatic program selector can be varied slightly by the user, if desired, by means of separate rinse water temperature, load cycle and Suds-Water-Saver se'ector switches. The rinse selector, Figure 1, when set to AUTOMATIC, permits complete control by the program se'ector; however, when set to COLD all rinse operations will be performed with cold water only. The load selector, Figure 1, when set to NORMAL, provides a full tub fill for normal size loads. When set to SMALL, the fill peri-

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"In recognition of your request, our engineers, through thousands of exhaustive tests they conducted, which duplicated the actual uses of each appliance, have extended our Mini-Breaker motor protector line to include devices that re-set manually or re-cycle automatically, that mount remotely or attach to the motor and are activated by both current and motor temperature. Whether you are interested in cost reduction, elimination of field service, improved quality, dependability, or design, our new miniature Mini-Breaker motor and circuit protectors will meet your requirements. Invite us in. We want to discuss every model in detail and also show you case histories of how Mini-Breaker has proven to be a sales feature."

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Jackson, Michigan

Branch circuit protector | Motor protector | Electric range outlet protector | Remote mount motor protector | Remote mount motor protector | Frame-mount motor protector | Grounded adapter with protector | Range outlet with protector | Cord end protector

Mini-Breaker Can Make the Difference That Makes the Sale

HL-20

ods are shortened to two-thirds of a normal fill period for small loads. The Suds-Water-Saver selector, (on Model WC1R only) Figure 1, changes the automatic program only if turned to ON in which case the saved water will be reused during the wash cycle.

New mechanism

A major change has been made in mechanism design for 1959 washers. All models now employ a belt-driven mechanism assembly which provides flexibility to offer single or dual-speed agitation and single or dual-speed spin, depending upon washer model application.

Complete mechanism assemblies for al models consist of three major components, the basic mechanism, the motor, and the clutch assembly.

Regardless of model application, the basic mechanism, Figure 2, is the same. However, flexibility is accomplished by means of differences in motor design and clutch design.

Imperial and Custom Imperial Models provide the choice of two agitate and two spin speeds. Normal agitate speed is 330 strokes per minute and a slower speed of 220 strokes per minute is available for washing delicate and special fabrics. Similarly, normal spin speed is 850 revolutions per minute and slow spin speed is 330 revolutions per minute. This is accomplished by means of a two speed 1725/1140 rpm 4-6 pole reversible 1/3-H.P. motor and a clutch assembly linked to a solenoid. Here again the clutch, by means of belts, engages the proper basic mechanism pulley for agitation or spin, depending upon motor rotation. The 1140 rpm motor speed is required to produce slow agitate speed only. This differs from Unimatic performance which provided 330 strokes per minute agitation and 1140 revolutions per minute spin speed, with no options.

Mechanism operation

Agitation Period: Refer to the mechanism exploded view, Figure 2, for part nomenclature and location in the mechnism. In describing rotation of a mechanism, all descriptions will be looking upward from the bottom of the mechanism.

Agitating action which is present during the wash and rinse periods is produced in the mechanism as follows: The motor drives the mechanism housing in a clockwise direction, Figure 3, during the agitate period. The mechanism housing is divided into an upper housing and a lower housing. At their juncture point, the flanges of the two housings form a pulley to accommodate the drive belt. The pulley formed at this juncture is the high speed spin pulley. Also bolted to these two housings is one addiitonal pulley which is used to produce agitation action. This larger pulley is also used to provide low

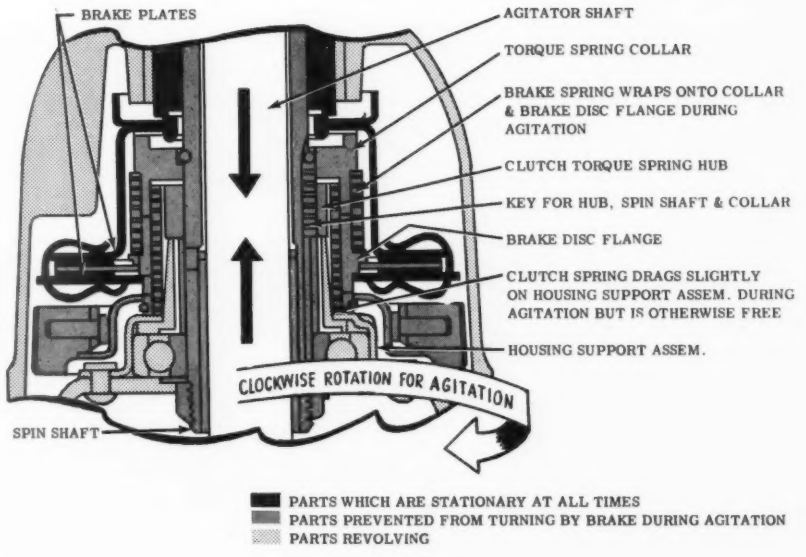

BRAKE PLATES
AGITATOR SHAFT
TORQUE SPRING COLLAR
BRAKE SPRING WRAPS ONTO COLLAR & BRAKE DISC FLANGE DURING AGITATION
CLUTCH TORQUE SPRING HUB
KEY FOR HUB, SPIN SHAFT & COLLAR
BRAKE DISC FLANGE
CLUTCH SPRING DRAGS SLIGHTLY ON HOUSING SUPPORT ASSEM. DURING AGITATION BUT IS OTHERWISE FREE
HOUSING SUPPORT ASSEM.
CLOCKWISE ROTATION FOR AGITATION
SPIN SHAFT
PARTS WHICH ARE STATIONARY AT ALL TIMES
PARTS PREVENTED FROM TURNING BY BRAKE DURING AGITATION
PARTS REVOLVING

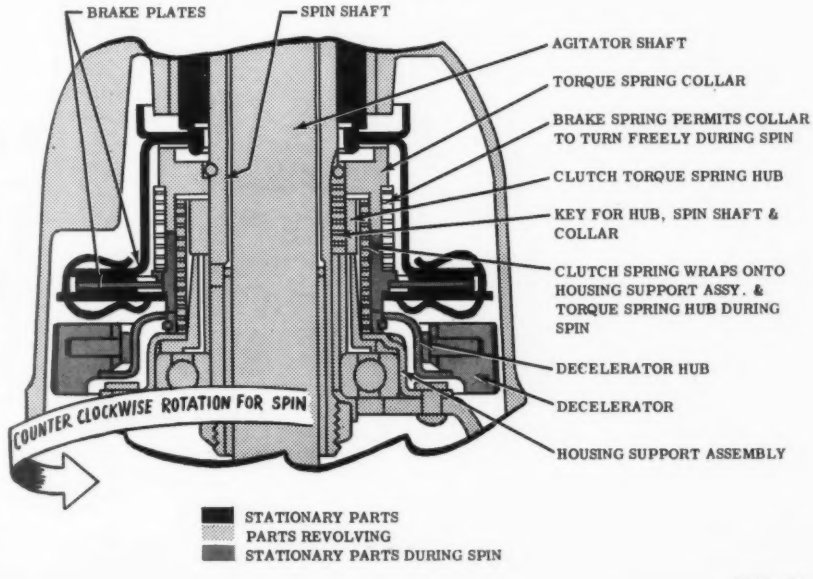
FIGURE 3

speed spin on the Custom Imperial and Imperial. Also at this juncture, the mechanism housing support is clamped between the housings so that it revolves with the housing assembly.

The 4-6 pole motor is used to give two separate operational speeds. A clutch assembly is used to transfer the power from one belt to another; with the clutch assembly in *down* position, it is locked to the lower pulley and drive belt. In this position, when the motor runs on the 4-pole winding in a clockwise direction, 330 strokes per minute agitation is obtained. With the clutch in lower position, and the motor running on 6-pole winding in a clockwise direction, the result is 220 strokes per minute. With the clutch still in lower position, and the 4-pole winding of the motor running in counterclockwise direction, 330 revolutions per minute spin is obtained.

The housing support assembly incorporates a ball bearing which slips over the lower end of the spin shaft. The upper flange of the housing support lies inside of a helical coil clutch torque spring. This spring is interlocked with a clutch torque spring hub which, in turn, is keyed to the spin shaft. Thus, whatever motion is applied to the clutch torque spring is applied directly to the spin shaft. The clutch torque spring is coiled in a direction so that it will expand and release its hold on the flange of the mechanism housing support when the support turns in a clockwise direction for agitation. However, the lower portion of the housing support flange,

FIGURE 4


BRAKE PLATES
SPIN SHAFT
AGITATOR SHAFT
TORQUE SPRING COLLAR
BRAKE SPRING PERMITS COLLAR TO TURN FREELY DURING SPIN
CLUTCH TORQUE SPRING HUB
KEY FOR HUB, SPIN SHAFT & COLLAR
CLUTCH SPRING WRAPS ONTO HOUSING SUPPORT ASSY. & TORQUE SPRING HUB DURING SPIN
DECELERATOR HUB
DECELERATOR
HOUSING SUPPORT ASSEMBLY
COUNTER CLOCKWISE ROTATION FOR SPIN
STATIONARY PARTS
PARTS REVOLVING
STATIONARY PARTS DURING SPIN

Ingersoll's huge automatic spray pickler provides the first step toward the most beautiful, most durable porcelain enamel finish available.

WASHING MACHINE

TUBS ARE

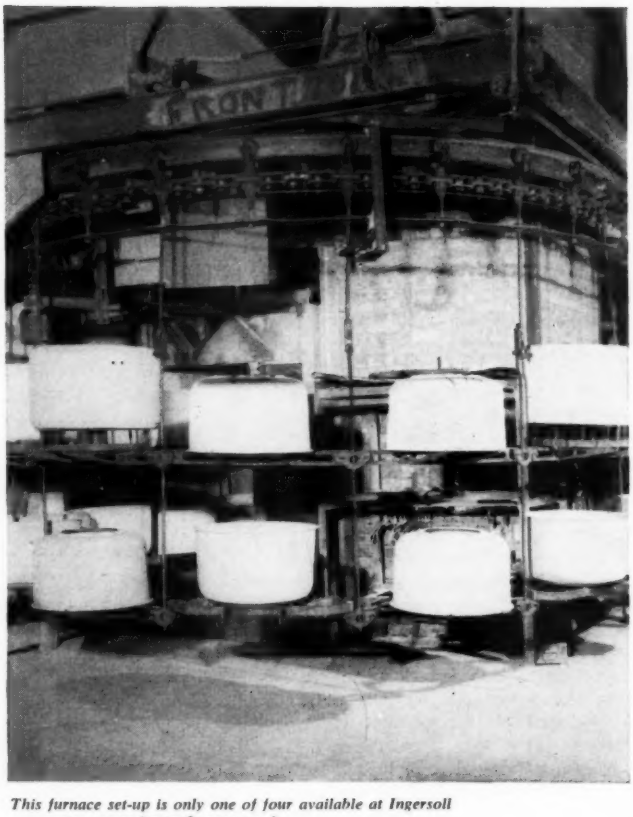
AN INGERSOLL SPECIALTY

Specialized Experience, Skill and Equipment Assure Dependable Quality at Your Convenience.

Over the years, leading makers of washing machines have come to count on Ingersoll for their tub requirements—because washer tubs are an Ingersoll specialty.

Long experience in the manufacture of all types, shapes and sizes of tubs . . . plus modern, highly specialized deep drawing, fabricating and finishing equipment . . . assure top quality in every detail, on-time deliveries, and economical costs.

Consultation with Ingersoll Sales and Engineering Personnel will pay off in lower manufacturing and tool costs on your enameled washing machine parts . . . tubs, lids, top panels or side panels.



This furnace set-up is only one of four available at Ingersoll . . . custom capacity to fit your needs.

Ingersoll *PRODUCTS DIVISION*
BORG-WARNER CORPORATION
Chicago 43 • Illinois

HL-22

due to its formation, does impose a certain amount of drag on the spring so that the spring will wrap down and lock on this flange as the flange is rotated in a counterclockwise direction.

A wobble plate type bearing assembly is keyed and attached to the lower portion of the agitator shaft at an angle. A stud on one side of the wobble assembly locates within a spherical bearing which is mounted in the lower housing wall with two bearing rings. This spherical bearing is free to move in any direction and the wobble plate stud is free to revolve around the agitator shaft on its bearing. As the mechanism housing revolves in a clockwise direction, the wobble plate and its stud rotate around the agitator shaft. Since the spherical bearing moves about the agitator shaft at right angles while the wobble plate is inclined, the agitator shaft is forced up and down as the housing revolves.

As a result of torque reaction, the agitator shaft would, if permitted, revolve with the housing rather than move up and down. The shaft is prevented from turning in the spin shaft by splines which are located in the lower agitator shaft bearing and engage in mating splines in the agitator shaft. The torque which is transmitted to the spin shaft by the spherical bearing would tend to rotate the spin shaft and tub. This tendency is prevented by brake action, Figure 3. A brake torque spring collar is keyed to the spin shaft by the same key which keys the clutch torque spring collar. Thus the tendency for clockwise motion transfers from the spin shaft to the brake torque spring hub. The flange of this brake collar lies within the brake torque spring which moves in the opposite direction from the clutch torque spring; that is, clockwise motion tightens the spring by wrapping it on the brake collar. As it wraps on the brake collar, it also wraps on the brake disc flange and holds these two members together. The brake disc assembly is held under pressure between the two brake lined plates of the brake plate assembly. This brake plate assembly is locked directly into the spin shaft housing and bearing assembly which is always stationary. Thus the brake plate assembly is always stationary and this brake action holds the spin shaft stationary and permits agitating action to develop within the mechanism. The agitator shaft moves up and down within the spin shaft and its stroke causes the agitating action of the three-ring agitator assembly in the tub. At the end of the agitation period, the motor and mechanism come to a stop preparatory to entering a spin period.

SPIN PERIOD. Refer to Figure 2 for parts nomenclature and location within the mechanism. Figure 4 shows details for mechanism housing interior during the spin.

Spinning action of the mechanism and tub assembly is accomplished as follows: The motor and mechanism housings revolve in a counterclockwise direction (looking up from the underside).

The shift of the clutch assembly from lower to upper position, and vice versa, is accomplished through energizing and de-energizing the solenoid which is attached to a yoke.

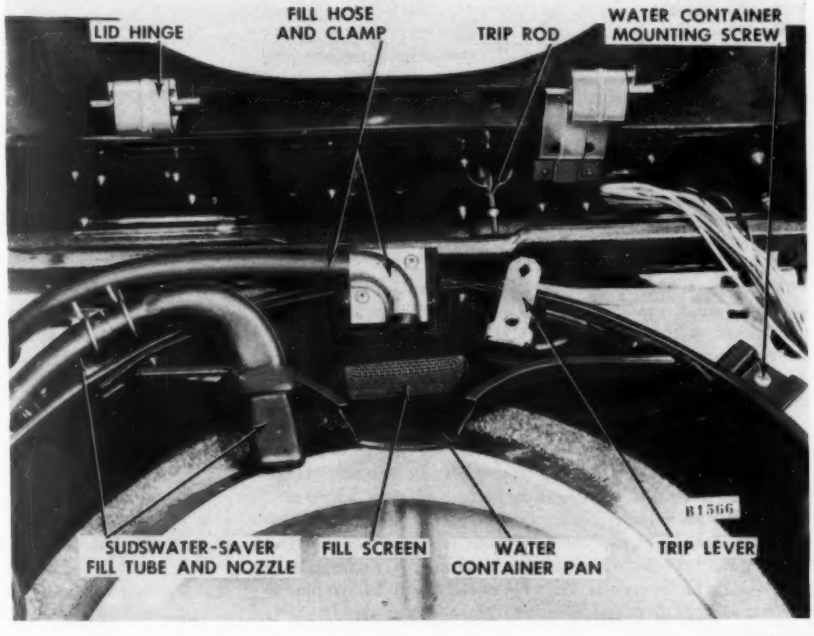
A unique switch arrangement provides for shifting from agitate to spin in 10 seconds, as contrasted to the former time of 40 seconds. In addition to this, when the shift is made, it goes first to low speed spin, represented by the counterclockwise drive on 4-pole winding on the lower belt and pulley. This gives full power for handling of water removal quickly. Then, after approximately 30 seconds, there is an automatic switch to high speed represented by the motor running on the same 4-pole winding, counterclockwise, but with the solenoid energized to disengage the lower drive, and engage the upper drive, causing acecleration to 850 rpm. (This only happens when high speed spin is called for in the cycle.)

Again the housing support moves with the housings and the clutch torque spring wraps on the support flange. The clutch spring picks up the rotating motion and transmits it directly through the clutch spring hub to the spin shaft. As the clutch spring wraps down, it moves away from the inside of the brake torque collar so that it is free to turn inside the brake collar.

As previously explained, the brake torque spring works in the opposite direction from the clutch torque spring and the brake spring unwraps during the spin operation to permit the clutch spring hub to turn freely. Also, as previously explained, the agitator shaft is keyed to the spin shaft rotationwise and, therefore, the two shafts spin together. This cancels the action of the wobble plate and no agitation occurs.

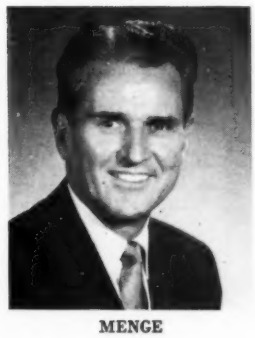
BRAKE PERIOD: At the completion of the spin period, the motor is de-energized and since it and the mechanism housing tend to decelerate faster than the tub assembly, the clutch torque spring unwraps. This permits it to move out until it contacts the inside of the brake torque collar. As the clutch spring contacts the stationary brake torque collar, a drag develops on the clutch torque spring which causes it to expand further until it grasps the brake torque collar. This results in the brake torque collar and brake disc assembly turning with the spin shaft. The resulting drag imposed by the brake disc during rotation between the brake plates slows the spinning action of the tub and causes it to come to a stop. A further action is developed by four decelerators which are attached to a hub which is locked with the brake disc assembly. These decelerators fit over pins of the decelerator hub and rotate with the brake disc assembly. These decelerators are lined with frictional material in the same manner as the brake plates. As soon as the brake disc begins to rotate during a brake period, the decelerators move out on their pins and grasp the inside surface of the mechanism housing. This action causes the mechanism housing to tend to continue rotation at the same relative speed as the spin shaft during a brake period and prevents excessive agitation. These decelerators are illustrated in Figure 4.

FIGURE 5



Future of the Home

CONNELL
See Page HL-26



MENGE

BUMBY
See Page HL-26

BULL

BY *C. H. Menge* GENERAL SALES MANAGER
FRIGIDAIRE DIV., GENERAL MOTORS CORP.

Four factors for a 6 million unit year in '65

The business outlook for automatic home laundry equipment looms bright and clear in the years just ahead. Population growth, new household formations and increased buying power will bolster the growth of the business.

Even so, a full potential for the Industry is dependent upon four additional factors. First, quality in products will play a more important role than ever before. Second, there will be increased emphasis on the importance of high standards of service. Third, product design must not be based merely on aesthetic styling, but on fundamental research and subsequent development of meaningful features that provide real benefits. Finally, there is a great need for sensible, sound business practices, especially in the areas of pricing, inventories, merchandising, advertising, and professional salesmanship.

All considered, the growth of the business will be steady and by 1965 the Industry probably will sell in the neighborhood of 6,100,000 automatic home laundry units. It appears that the laundry sales volume will continue to hold an edge over household refrigerators and food freezers with the unit sales volume of these two products estimated at about 5,900,000 for 1965.

BY *R. E. Brooker* PRESIDENT
WHIRLPOOL CORP.

The industry must face its service problem

Technological advance and innovation by the home laundry industry have assured future demand for its products. Anticipated consumer need for special washing and drying cycles to properly launder miracle fabrics, progressive refinement of the actual washing results, more reliable automatic operation which requires less of the homemaker's time and attention, all these stem from the ingenuity of the industry's engineering talent.

With population growth providing a potential increase in the demand for our products and with an enlarged replacement market accelerated by innovations, the industry must now face up to its problem on service. Intensified, conscientious attention to product design can reduce service calls and make servicing simpler and more economical. The industry can benefit itself through a planned consumer education program to induce homemakers to accept maintenance of appliances in the same manner they accept automobile and home repairs.

If current rising cost trends result in higher consumer prices, the industry should act to reap the profit benefits that can accrue by improved point-of-sale techniques on the better quality merchandise. In a rising market, the consumer demand will tend heavily toward machines with the newest features and superior performance; proper selling coupled with sound financing can increase the average unit sale substantially and, with this trend firmly established, improve the sale and profit results throughout the industry.

BY *R. G. Halvorsen* EXECUTIVE VICE-PRESIDENT
HAMILTON MFG. CO.

Superficial changes vs. product improvement

We've got the cards: will we win the game?

What a hand this industry holds! We have impressive present volume, relatively-low saturations and, already, a well-developed replacement market. Each year brings an increase in the size and scope of the "family washbasket," as new fabrics, new conversion processes, new construction make completely launderable living more and more a reality. We're experiencing great population growth, and even more important, there's a huge new wave of family formations only a few years away.

How can we fail to win? Only by playing our cards badly.

Much of our market wants, and will buy, top quality products — why urge them to accept less? In a market this strong we can keep the entire distribution process in the black — why operate it in the red? Why continue to substitute expensive, superficial annual model changes for genuine product improvement? Isn't this nothing more than poor card-playing?

The future? We continue to feel it is just as bright as we'll let it be.

Laundry Appliance Industry

HALVORSEN

TRAVIS

LENNA

BROOKER

BY *Homer L. Travis* VICE-PRESIDENT - SALES
KELVINATOR DIV., AMERICAN MOTORS CORP.

Product benefits vs. price or big trade-in

The gradual return to creative selling in the home laundry industry is a very healthy sign for the future, as well as the 1959 model year.

Certainly, this renewed emphasis on product benefits and satisfactions at the retail level will make an important difference in the industry's sales growth.

This coming year there are going to be more salesmen talking product benefits instead of price or big trade-in allowance — more advertising that points out consumer benefits instead of "was-is" advertising.

The past year the industry has done a good job of controlling production and inventories. Now, we are in the best inventory position we have had for the past six years at dealer, distributor and manufacturer levels.

We can look for gains in all three main laundry groups — washers, dryers, and combinations — a gain that could well exceed the upturn in business, generally.

The important thing for the industry to remember is that most of the home laundry sales that failed to materialize this past year were not lost — they were postponed, and we can make those sales this year.

BY *R. A. Lenna* PRESIDENT AND GENERAL MGR.
BLACKSTONE CORP.

Funds for modernization and expansion

Here at Blackstone, we are firmly convinced of the bright future and tremendous potential which we feel lies ahead of us in the laundry products field. We believe the industry is on a new threshold of startling developments involving features and performance which will greatly increase the quality and completeness of the laundering job which these products will do for the housewife.

With the rapid expansion and use of synthetic and wash-and-wear fabrics, we feel there will be a marked increase as well as change in home laundering activities. We are continuously, and to an increasing degree, directing our engineering efforts into this area.

Furthermore, in view of the forecast expansion in the number of new families, homes and births, as well as the tremendous replacement possibilities, we are looking forward and making our plans to be a part of the expanding sales opportunities that will result from these market potentials and improvements in our products.

We are so confident about the future of the home laundry business that we have already expended considerable funds for the modernization and expansion of our plant facilities and are entering into a completely new development and manufacturing program with a new line of wringer washers, automatic washers and gas and electric dryers.

BY *H. P. Bull* VICE-PRESIDENT - SALES
NORGE DIV., BORGE-WARNER CORP.

Expanding profit opportunities in early '60s

Within the next 12 years, the home laundry industry will sell 65 million home laundry appliances. Laundry equipment is in a particularly fortunate position, the combination automatic washer-dryer market will expand sharply after 1960 and at the same time, the automatic washer replacement market is coming of age. No other line of home appliances is incorporating as many important changes in engineernig and product features as those being developed by the home laundry industry.

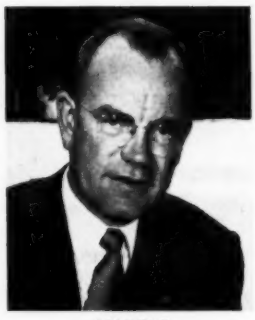
The home laundry appliance is a strong weapon in the hands of the manufacturer who seeks more and more retail outlets for his products.

This interest in dealerships is basic, for today one of the most bitter and significant battles taking place in our industry, is in the field of retail distribution. The pattern during the past few years has been toward a greater concentration of appliance volume among a relatively small number of dealers. As a result there is a constant battle for product representation on the selling floors of these key dealers.

The manufacturer who has the correct product, with the correct features, competitively priced — and who has the promotional programs and activities that will bring the people out of their homes and into the stores, will be the one who will best weather the crucial years ahead and reap the expanding profit opportunity available to the industry in the early 1960's.

More statements on next Page

ERICKSEN



MAYTAG

HOLT

See Page HL-44

LEE

See Page HL-44

BY *R. C. Connell* MERCHANDISE MANAGER
LAUNDRY, PHILCO CORP.

"Lowest price ever" vs. basic improvements

I sincerely believe that the Home Laundry industry has a tremendous growing future for as long as we can see ahead. It certainly has products that no household can be without, and the new devices recently added to it make it all the more attractive to the American housewife.

However, I am strongly of the opinion that, in order to keep this market growing, manufacturers must get away from "Lowest Price Ever" and get into selling solid, basic improvements which the entire industry needs.

The combination washer-dryer market is growing steadily. The next five years should see the total units sold exceed half-a-million per year.

As more women learn the benefits of automatic drying, this market, too, will boom.

Wringer washer sales, while fairly neglected, will continue to be a thriving business.

BY *Fred Maytag II* PRESIDENT
THE MAYTAG CO.

The dealer "squeeze"—a major problem

The appliance industry has a wonderful future ahead of it in the coming decade, IF we in the industry can solve the major problem of enabling the independent appliance dealer to make money. In the industry's competitive zeal to increase volume during the past few years, the dealer often has found himself squeezed between the manufacturer and wholesaler on one hand and the consumer on the other.

Whether or not the situation is partly or largely of the dealers' own making, the fact remains that, as a group, they are not making as much money as they should. Thus, without adequate margins, they are unable to provide those creative merchandising services so necessary to the growth and well-being of the industry. Unless this problem is solved, and reasonably soon, the industry as a whole is bound to suffer.

It would seem that if the dealer is to return to a sound pricing policy at the retail level, he will need the concerted assistance of all levels of the appliance industry. Successful solution of the problem will come only through the coordinated efforts of manufacturers, distributors, dealers, and even dealer salesmen.

BY *Parker H. Ericksen* GENERAL MANAGER
EASY DIV., MURRAY CORP. OF AMERICA

Creative planning—key to improved sales

The last half of '58 will see a real perk up in laundry sales, and I believe that it will continue during a hardened economy. While we may not have a major boom, the long-term trend is certainly optimistic for these reasons: distributors and dealers can rebuild stocks that were cut to the bone; consumers have paid off back installment debts and are returning to the market; the surge in housing is beefing up the home equipment market; and the population bulge in the young married groups will exert profound influence on household formation. . . .

Still, we in the home laundry appliance business would do well to realize that it is only sounder selling plus the offer of a better product for the dollar which will really sell the consumer. We must really analyze and appraise the contents of today's and tomorrow's homemaker's washbasket and provide the answers in products that realistically meet both her current and future needs.

That is why we at Easy are putting such a giant effort behind the washer/dryer combination.

Creative planning on the part of the industry to understand real laundry needs and satisfy them is the key to improving sales climate. And the industry can attain its deserved share of gross national product only when we realize that value salesmanship rather than price slashing is what will smoke out consumer dollars.

BY *H. A. Bumby* PRESIDENT
SPEED QUEEN DIV., MC GRAW-EDISON CO.

Opportunities that lie ahead are great

Speed Queen views the future of the home laundry appliance industry with considerable optimism. Whether a manufacturer produces a full line or is a laundry equipment specialist, the opportunities that lie ahead are great. The changing techniques of laundering and changing fabrics make it possible for greater product obsolescence than exists for other major appliances. This replacement market plus the population growth are basic reasons for our confidence.

→ *to Page HL-44*

Listen in! Coast to Coast!

"There's nothing like PORCELAIN ENAMEL for Home Laundry equipment"

FERRO

You'll hear it in *every* market, every residential community, *52 weeks* a year. Women *like* porcelain enamel... like the way it resists scratches and stains, wipes easily clean, stays *new* for years and years.

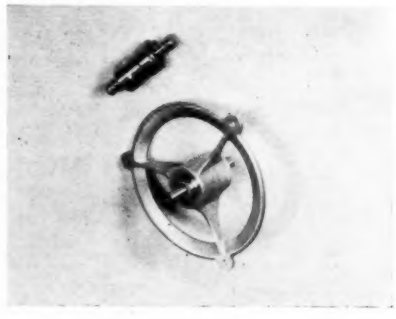
So... they tell *other* women, simplifying the selling job of smart dealers and "knowledgeable" manufacturers. If you're not one of these, may we suggest you *listen in!* You'll find it good business!

FERRO CORPORATION 4150 EAST 56TH ST. • CLEVELAND 5, OHIO

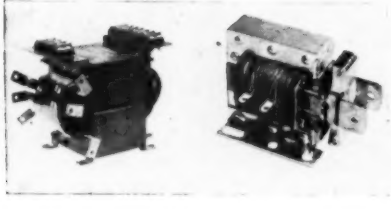
WHAT'S NEW IN MATERIALS AND COMPONENTS FOR THE HOME LAUNDRY INDUSTRY

Development of a new super quiet cartridge bearing for dryer blower applications has been announced by Congress Drives Division of the Tann Corporation. Featuring Permawick lubrication in its patented re-circulatory oiling system, this bearing will carry a three-year warranty against failure. Shaft sizes and extensions will be supplied to meet customer specifications. Illustrated is the bearing unit itself and an example of its use in a spider casting for a specific blower application.

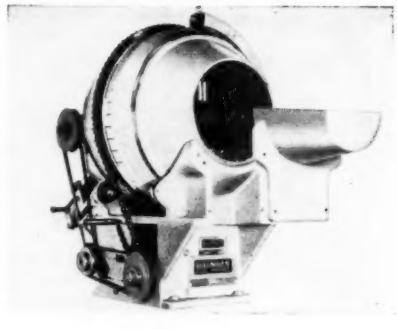
Contact at 3750 E. Outer Drive, Detroit 34, Mich.



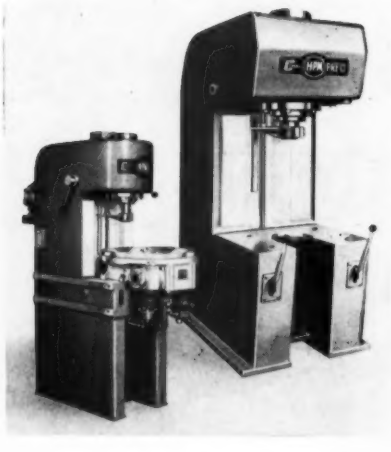
Two types of hoppers for feeding screws and other small parts have been developed by the Power Tools Division, Illinois Tool Works, 2501 N. Keeler Ave., Chicago 39, Illinois.
The Oscillating-type Hopper is capable of feeding pre-selected quantities at the rate of approximately 125 pieces per minute.



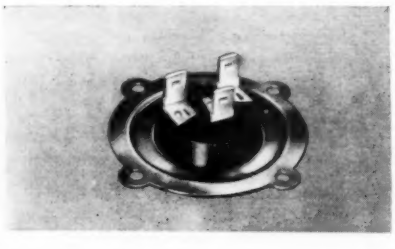
A new type of solenoids and transformers protected against fire and shock hazards are now available. They have been developed by means of a design employing a unique internal construction by which the coil becomes a self-protected apparatus. Dormeyer Industries, 3418 N. Milwaukee Ave. Chicago, Ill.



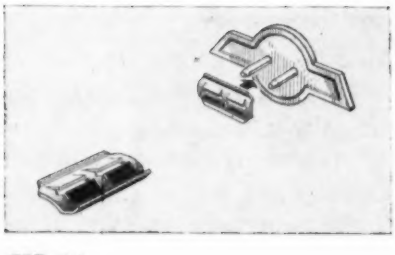
The Hydraulic Press Mfg. Company, A Division of Koehring Company, Mount Gilead, Ohio, has released information on a new, complete line of small, fast-acting hydraulic C-Frame presses built in 5, 10, and 15-ton capacities.



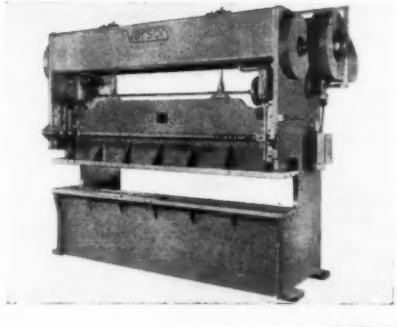
A new line of automatic reset thermostats, the KLIXON 20400 series, comprises single-pole, single- or double-throw, heavy duty thermostats with models for fan switches in hot air heating systems; and for operating control and safety high limit control on gas and electric clothes dryers, washer-dryers, Design & Development Bulletin, DD-THSN-19, as well as operating and thermocouple-equipped samples are available from the manufacturer: Metals & Controls Corporation, Spencer Thermostat Division, Attleboro, Mass.



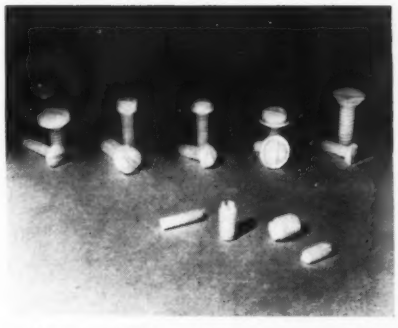
Verson Allsteel Press Company has announced a new type gang punching machine which features light tonnage and large bed and ram area. Complete specifications are available from Verson Allsteel Press Company, 9300 South Kenwood Avenue, Chicago 19, Illinois.



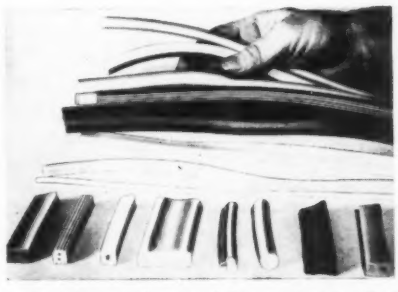
A new Push-On type speed nut, designed to provide rapid, secure fastening for name plates, emblems, medallions and other forms of product identification was announced.
Contact Tinnerman Products, Cleveland, Ohio.



The accompanying picture shows before and after buffing compound removal with Bufsol, a new, all-soluble buffing compound remover recently introduced by J. B. Ford Division, Wyandotte Chemicals Corporation. Above left, buffed die cast handle entered plating department with impacted buffing compound deposits and handling smears. Three minutes in a hot Bufsol bath produced the copper and nickel plate at right, according to the manufacturer, located at Wyandotte, Mich.



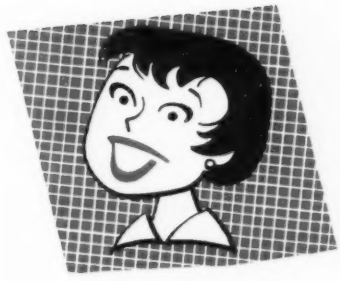
An expanded line of close-tolerance molded nylon screws, providing increased design flexibility in a wide variety of applications, is now available from Gries Reproducer Corporation, New Rochelle, New York. Following their successful introduction of these fasteners last year, GRC has added a great many new thread sizes, head types, and lengths, for a full range of selection.



A new extruded vinyl foam material called "CIPCO Foam" has been developed and field tested by the Carolina Industrial Plastics Division of Essex Wire Corporation, 1601 Wall St., Fort Wayne, Ind.

"CIPCO Foam" continuous length extrusions feature a very uniform, small cell structure, with a controlled mixture of open and closed cells; while the basic vinyl formulation can be varied to accommodate any particular application requiring unusual or special profile shapes.

to Page HL-45 →



she SMILES when she buys your dryer!

she SMILES when it's delivered!

keep her SMILING she's your best salesman!

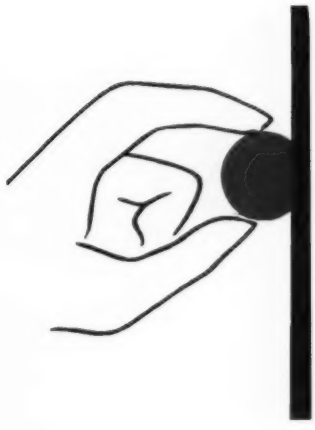
the dryer element with the lowest purchase price may be the most expensive!

Purchase price *plus* service costs gives you the real cost of a dryer element. Use the element that will keep your customer smiling.

One out of three electric dryers produced this year was equipped with quality "NYKELKROM" heating units by H. W. Tuttle & Co.—THERE MUST BE A REASON!

H. W. TUTTLE & CO. Adrian, Michigan

Manufactured and distributed in Canada by CRONAME (Canada) Ltd., Waterloo, Quebec



New coin-operated laundry appliances

new Maytag washer for commercial and institutional use has coin mechanism integrated with controls

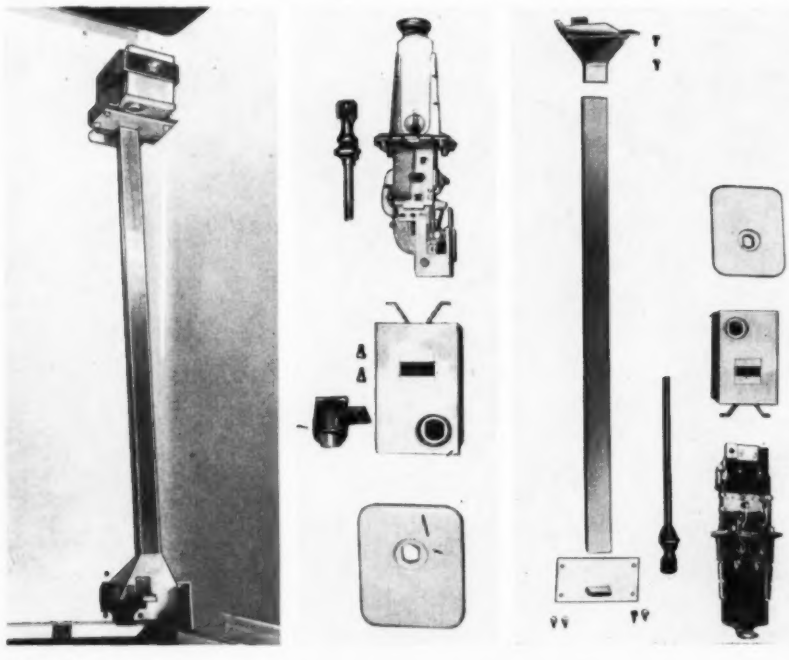
MPM EXCLUSIVE FEATURE

There is keen interest in the market for washers for commercial and institutional use which can be coin-operated. As this special section of MPM goes to press, Maytag is introducing its coin-operated commercial washer (Model 123CM) which incorporates a number of design features approved by leading operators and distributors.

The new Maytag appliance was designed from the ground up, specifically for coin-operated use, and was engineered around numerous suggestions offered by distributors and operators in the coin-operated machine business, who had the opportunity of viewing the product in preliminary stages of engineering.

Features of the new washer include the following: (1) a built-in coin mechanism, eliminating the need for a meter, (2) a wash cycle which cannot be altered by the user, (3) front collection, (4) a separate money box hidden from view, which cannot be reached when the machine is serviced, (5) metered fill, to guard against problems of low or fluctuating water pressures, and (6) a thermostatically-controlled brass water valve.

The basic mechanisms of the coin-operated washers and dryers. The middle view shows the coin chute and collection box from the inside of the cabinet. The other two views are of the coin mechanism components of the washer and the dryer.



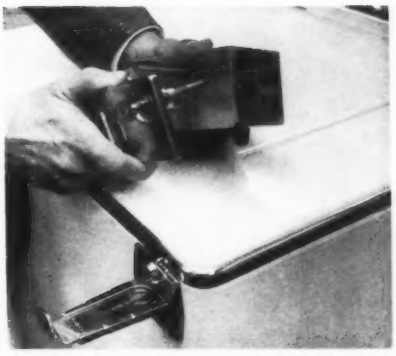
The machine utilizes the same helical drive mechanism found in other Maytag automatics. It incorporates safety lid and tub brake; it is designed for top loading, and specifications call for porcelain enameled top and lid. The "wash basket" is also porcelain enameled.

Especially-designed gas and electric clothes dryers, to match the coin-operated washer, are also available for coin routes or institutions. Dryers incorporate the "halo of heat" principle found in the company's domestic dryers.

The coin-operated mechanism for both appliances is an integral part of the machine, mechanically linked to a preset timer.

Operating instructions are permanently imprinted inside the washer lid and dryer door. The user merely places clothing inside, selects water temperature, and deposits coins. The washer automatically fills, washes, rinses, damp-dries, and shuts off. Neon lights on both appliances indicate when they are in operation. The coin-slide mechanism is available with either single or double coin slots in any price arrangement from 5 cents to 35 cents. A special key-operated locking mechanism on the coin slide assembly permits quick adaptation of the coin slide to any pricing pattern.

The machines are designed for front collection — a method speedier and more convenient for owners. Money is protected by a collection door made of heavy iron, with a special bolt-type, circular key lock recessed into the door for additional strength. Coins are collected in the separate money box locked inside the cabinet behind the collection door. The box cannot be removed, even from inside the cabinet, without the key. The entire machine may be completely serviced without access to the money compartment.



A separate money box is hidden from view and cannot be reached when the machine is serviced.

Money boxes are available with or without a separate lock, depending on the method of collection preferred by the operator. A built-in device reveals any attempt to shake coins from the locked box.

Metered fill control

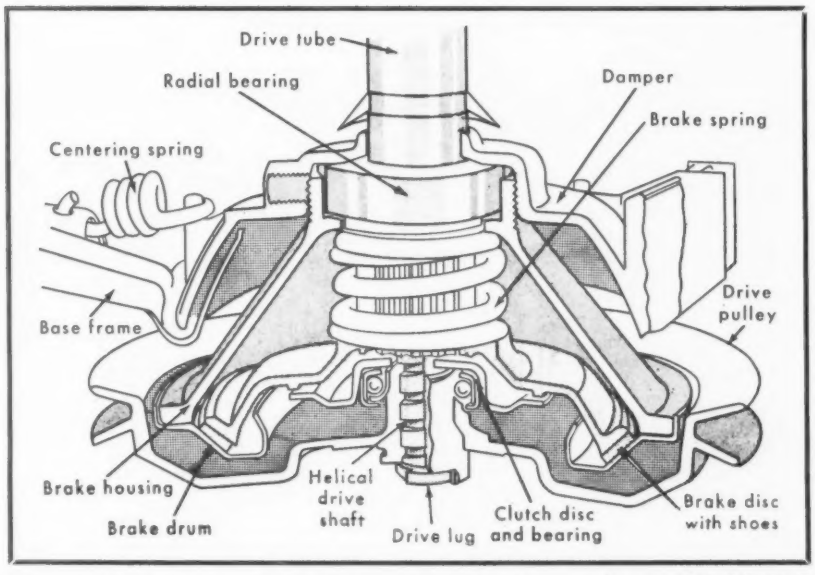
The washer is equipped with metered fill control to adjust for water pressure variations. Set on "hot," the water is delivered at the temperature in the hot water line. On "warm," the water is thermostatically controlled to 100° F. Rinse water is always warm. The valve is brass for greater durability in commercial installations, where water temperatures sometimes can be high.

Loading is from the top, and articles may be added or removed at any time in the cycle. A safety lid switch and tub brake stop the machine within seconds if the lid is raised during operation. The dryer also has a safety door. These safety features are considered especially important in commercial applications.

The washer incorporates a helical drive mechanism, which was tested extensively in accelerated-wear tests at the Maytag factory, and has had two years service in Maytag domestic washers, as well as service in coin-operated installations of adapted domestic washers.

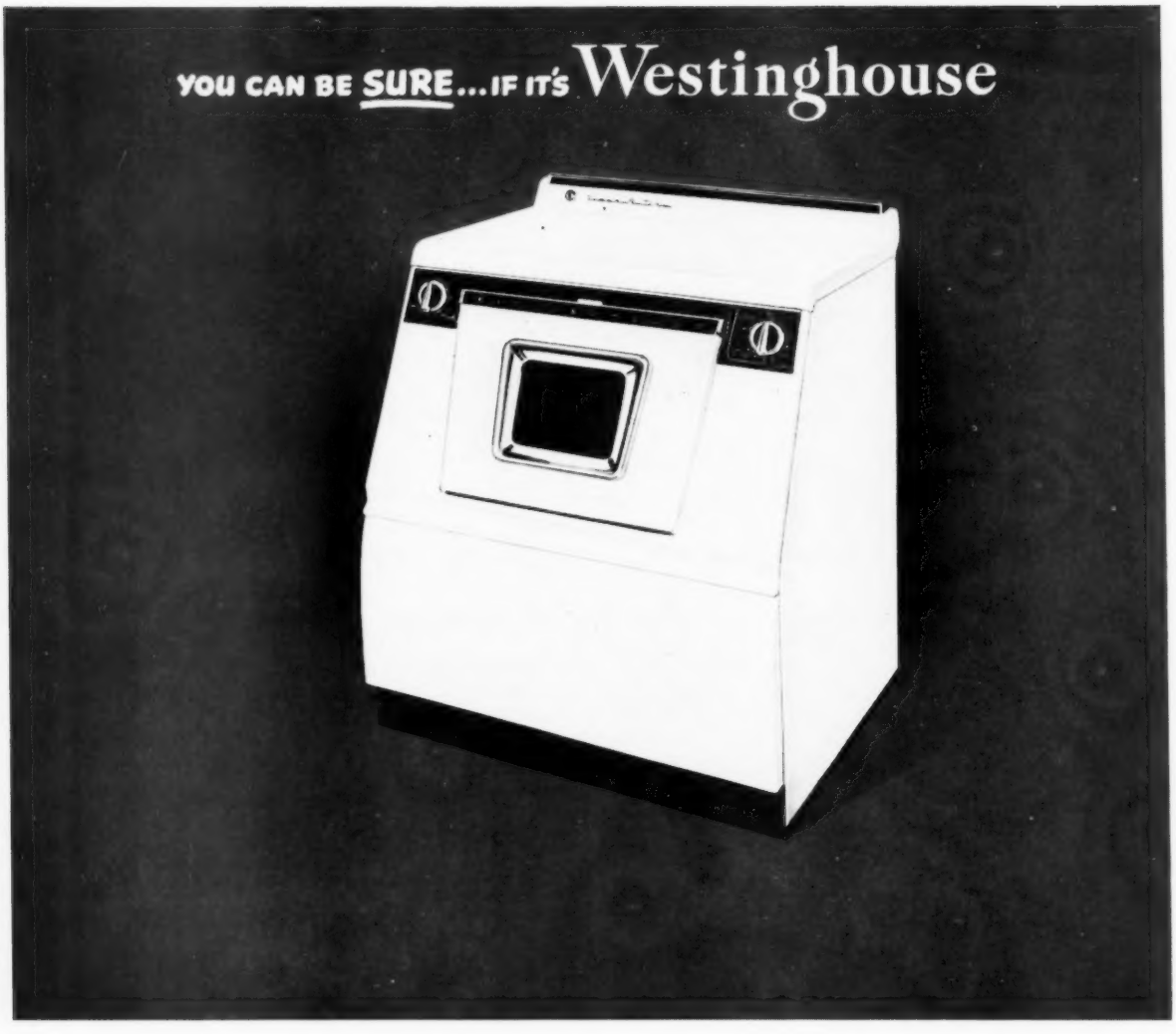
Adjustable legs are furnished so that the machine can be leveled on any type of floor, and the design is such that no bolting down is required.

Maytag executives point out that the styling of the Maytag coin-operated commercial washer is comparable with "top of the line" home models. The aesthetic design features were incorporated as an assist to installations in resorts, motels, and institutions. Painted parts of the cabinet have a "quad-coat" consisting of zinc-coated steel, phosphate metal preparation, a primer coat, and finish coat of high-baked enamel.



The new Maytag coin-operated commercial washer features this simplified helical drive which is designed to withstand the repeated use coin-operated laundry equipment receives. A reversible motor is used with the helical drive mechanism. The motor turns a drive pulley that is mounted on a center drive shaft helix. Gyrofoam agitation action is achieved when the drive pulley is at the bottom of the helix. In the bottom position (shown above), the drive pulley engages a stop on the center shaft, causing the center shaft to rotate and drive the gear case mechanism which operates the agitator. If the electric circuit is broken or the machine shut off while the inner tub is spinning, the coil brake spring forces the drive pulley down on the helix, allowing the spring to actuate the brake which stops rotation.

YOU CAN BE SURE... IF IT'S Westinghouse



For quality of finish that is assured—

today's leaders in appliances choose

Du Pont DULUX® Enamel

Sustaining a record of quality products is essential in today's market. And DULUX Enamel is an essential in the quality-control program of many major manufacturers.

For DULUX Enamel provides a finish that can be counted on to resist harmful effects of soaps, detergents, heat.

Smart appearance is assured by this finish, resisting as is does chipping, scratching or staining. Easy cleanability and smart appearance are assured, and at no sacrifice of service life. DULUX keeps colors bright and whites a true white, through any normal hazards the washer-dryer is subject to in its service life.

Matching this satisfaction in the consumer's home is the record of performance of DULUX on your line. Whatever method of application you now use or contemplate, there's an appropriate DULUX appliance finish.

For real help, why not arrange a talk with your Du Pont Finishes technician? Arrange it soon. *E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Del.*

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

"DULUX" ENAMEL

America's leading home-appliance finish

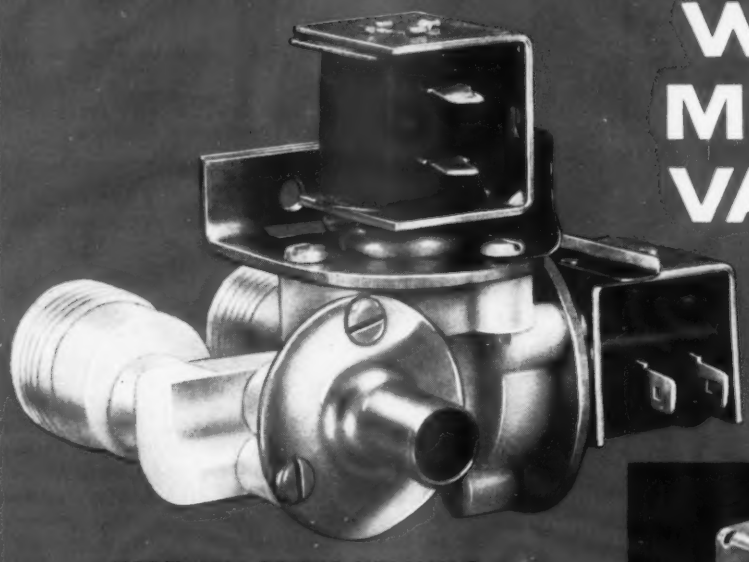
Over 65,000,000 major home-appliance units have been finished with Du Pont DULUX Enamel

HL-32

NEW SORENG

3-temperature, non-thermostatic, flow-proportioning

WATER MIXING VALVES



MODEL 621 DOUBLE MIX VALVE

NEW LOW-COST MODEL 622
SINGLE MIX WATER MIXING VALVE

NEW FEATURES...NEW ECONOMY

The Model 621, double mix valve, flow-proportioning system meters hot and cold water in pre-selected ratios to obtain required temperature ranges. This system minimizes the effect of inlet pressure variations in the house water system without the added cost of a thermostatic element.

FUNCTIONAL CHARACTERISTICS

- With temperature at source of 140° and 60°, the Model 621 double mix valve delivers the following:

HOT	—140° F at 4 GPM
MEDIUM	—115° F at 6 GPM
WARM	—100° F at 4 GPM

FEATURES:

- Body molded of nylon
- Check valves located in each inlet
- Monel filters in each inlet—(Brass Optional)
- Precision engineered and manufactured to meet life requirements
- Mounting bracket and outlet plates to customer specifications
- Coils are easily replaced without disassembly of valve for odd voltage and frequency export requirements

Non-thermostatic, the Model 622 valve delivers 4 GPM of hot (140° F), cold (60° F) or an equal mix (100° F). It is sturdy, dependable and exceptionally low in cost.

Either of the above models can be furnished without flow controls at an additional reduction in cost.

Write for Bulletin SL 10 on these two water mixing valves. There is no obligation, of course.

CONTROLS COMPANY OF AMERICA
Manufacturers of *SORENG* controls
9559 SORENG AVENUE • SCHILLER PARK, ILLINOIS

Presenting the latest l

Laundromat by Westinghouse features a wash and dry program center that enables the operator, after determining the fabric, to merely set the wash program and the dry program accordingly and from that point on the machine performs automatically.

WESTINGHOUSE

The former Dortha Blair, now Mrs. Robert Hamilton, has been modeling "off and on between children" for 11 years and for part of that time was concurrently secretary to the sales manager of an appliance distributor. Modeling has been a hobby with her and this is the first time she has appeared with Westinghouse laundry equipment.

Her husband is in the sales department of Ohio Bell Telephone and they now live at nearby Zanesville, with their two sons, Gary age 7 and Steven age 3.

The new model A25F Speed Queen automatic washer features a completely new stainless steel bowl-shaped tub. In addition, the washer has an aereated waterfall inlet that disperses soap more rapidly and increases laundering efficiency.

SPEED QUEEN

Mrs. Kay Thomas (blue eyes, auburn hair) is of German extraction and has lived in Milwaukee most of her life. She attended St. John's Cathedral High School and Marquette University. Kay is married and is the mother of two children: a boy, three and a girl, one and a half years old.

She started modeling at the age of sixteen and graduated from Patricia Stevens Modeling School; she has been modeling professionally for the past six years. While her husband was stationed in El Paso, Texas, Kay appeared weekly on a TV show modeling clothes.

Kay is affiliated with the Milwaukee Society of Models, and is also permanently employed at the Boston Store as a model.

est laundry appliances

home laundry appliance showcase plus entries in the third annual MPM photo contest for selection of Mrs. Home Laundry Queen of 1959

Twenty-seven inches is all the space required for the Easy washer-dryer — one of the smallest on the market. It also features four separate clothes conditioning actions and, coupled with the tilted tub, washes clothes with less water. It can wash or dry separately.

EASY

Joanne Marie Dutch was born January 22, 1934 in Kalamazoo, Michigan. She has blue eyes and "Strawberry blonde" hair.

Joanne was married to her husband Don, now industrial sales manager for Musi-Craft in Chicago (hi-fidelity store), in 1956.

A typical working housewife, currently employed as secretary to Arnold Ver Lee at Easy, she is also a homemaker and had Easy equipment long before she left the modeling profession to become an attractive and very competent secretary.

New Kelvinator washers for 1959 are equipped with rinse additive dispensers which automatically place powdered compounds into water during rinse cycle. Dispenser fits on top of agitator post and is activated by action of the lint filter pump.

KELVINATOR

Jackie Law, candidate for MPM's "Mrs. Home Laundry Queen for 1959," was born in central France in the town of Clement-Ferrand. She studied operatic singing and piano. In the Spring of 1945 — V-E Day — she met her husband, Jack. They were married in the little town of Auxerre in the late Summer, and left for the United States and her husband's native Michigan. They now live in the Detroit suburb of Royal Oak. A son, Patrick, was born in 1946, just a year after their marriage.

Although she has been modeling for four years, Jackie's primary concern is her family and the cooking and sewing that go with it. She makes many of her own clothes, including those used in assignments.

This is the new Norge Dispensomat automatic washer model AWD-502 teamed up with the newest Norge dryer. The Dispensomat compartments are keyed to the proper cycle and feed the compounds at the proper time in the cycle. It has a fabric selector and a built-in clock.

NORGE

Mrs. Barbara Smith is staff home economist for the Norge home services department, currently in the middle of a major training program on the Norge Dispensomat. Barbara literally "talked her way" into the Norge 1959 Home Laundry Queen nomination. No other person, including Mrs. Jesse Cartwright, Norge home service director, has uttered as many words in behalf of this product.

Born in Chicago on October 27, 1931, Barbara attended Chicago public schools and was graduated from Purdue University with a B.S. degree in home economics education in 1952. She joined Norge that year. Married to Burton Smith, who operates his own insect control business, Barbara says she is "full time housekeeper and career girl."

Barbara travels about 50 per cent of the time, helping distributors and dealers to sell Norge home appliances, working on product development and testing, and posing for pictures with Norge.

HOTPOINT

Mrs. Barbara McCarthy is a busy, full-time homemaker and part-time model with an energetic 20-month old daughter. Mr. McCarthy (Gene) is an insurance broker who is also a part time model as well as Barbara. She taught nursery school for two years and attended

The Hotpoint laundry pair here have a number of features, one of which is held in the young lady's hand — the built-in lint filter from the LWW45

The Maytag "Halo of Heat" dryer here is teamed with the washer that features the new filter agitator. The filter agitator sets up new water currents to trap dirt and lint in the washing stream flushing dirt away from laundry, out the sides and bottom of the tub.

MAYTAG

Vivian Lanphier, employe in the Maytag Company's industrial engineering department, joined the appliance manufacturing firm in November, 1952.

A native of Newton, she was graduated from Newton High School and was married in 1949 to Ivan R. Lanphier who is employed by the United Telephone Company of Iowa in Newton. The couple has one daughter, Kimberlie Jill, 3½ years old.

Mrs. Lanphier's father, H. G. Varner, and two brothers, Gary and Robert, are also employed at the Maytag Company.

More New Products — Page HL-38

the University of Illinois both in Chicago and in Champaign. Both the McCarthys are natives of Chicago and own their own home. Barbara attended Faulkner High School and while at the U. of I. was a yearbook queen in The Brave, the Chicago Branch of the university's yearbook.

Wonderinse washer. The recently introduced wash filler fits right over the top of the agitator. The matching Hotpoint Ventfree dryer is at right.

RCA WHIRLPOOL

Mrs. Gloria Schweitzer, 29, is a career homemaker. Her time is planned around her daughter Claren, seven, son Eric, four, and her husband Lenard, a Whirlpool executive. In addition to her family, her home interests include gardening, decorating and a substantial expertise in preparing Mexican and Chinese dishes.

Activities include P.T.A., Y.W.-C.A.; membership on the Women's Board of Memorial Hospital, St. Joseph, Michigan, and Michigan Children's Aid Society.

Hobbies and interests include horseback riding, skiing, and the water sports for which her home state and community are noted.

Mrs. Schweitzer met her husband while she was an arts student at the University of Arizona. Mr. Schweitzer was completing graduate work in economics after finishing his undergraduate work at University of California at L. A.

Automatic five-temperature wash-rinse control and two separate washing cycles are outstanding features of the medium priced RCA Whirlpool automatic washer by Whirlpool Corp. All fabrics can be washed and dried according to simple settings. The Imperial Mark III models are both shown here.

1959 Frigidaire home laundry pair almost thinks for the homemaker. By just dialing the washer automatically selects proper wash time, amount of water, agitator and spin-dry speeds, and wash and rinse water temperatures. Bleach and bluing are dispensed at the right time.

FRIGIDAIRE

Bonnie-Lou Scott is 26 years of age, has been married for five years, and is a homemaker in addition to being a professional model. She is married to George A. Scott, an air traffic controller who is a Civil Service employe, now stationed at Wright-Patterson Air Force Base, Dayton, Ohio.

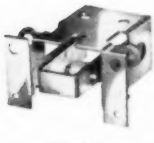
Bonnie-Lou also likes dancing, enjoys music and has been a professional model for three years. She was born in Ashton, Nebraska, December 13, 1931. She was educated in St. Francis elementary school in Ashton, was graduated from St. Mary's High School, Grand Island, Nebraska and has had one year of Business College.

IDEAS
IN HARDWARE FROM Amerock

"TOE-TOUCH DOOR OPENER" FOR HOTPOINT'S 1958 AUTOMATIC DRYER

Roller Catch and Strike

Door Release Mechanism



Foot Treadle Mechanism

Here's another example of how Amerock Design Service answers your hardware needs with functional, economical, safe sales features.

Hotpoint Co. requested a foot-operated dryer-door opener for convenience of the user who has her hands full of clothes. The mechanism also had to permit easy escape for any small child who might become trapped.

Well within budget and time requirements, Amerock designed and produced the smooth-working mechanism of the "toe-touch door opener" . . . a prominent sales feature of the 1958 Hotpoint dryer.

A secure double nylon roller catch releases or engages under 10 lb pressure. Release mechanism gently presses the door open when activated through a connecting wire rod. Absence of complicated mechanism simplifies installation, minimizes maintenance. Perfectly balanced Amerock hinges also play an important part in the easy, dependable operation of the door.

Whether your problem is best solved with custom designs, existing hardware, or a combination of the two, Amerock's years of experience and thousands of available designs assure you of the best possible answer by the shortest possible route.

SEND FOR AMEROCK IDEA FILE

Containing other Design Service projects . . . showing how Amerock Design Service can help solve your hardware problems.

AMEROCK CORPORATION
Dept. MPM89, Rockford, Illinois

☐ Please send idea folder. ☐ Please have representative call.

Write name, company, and address in margin below.

Blackstone matching laundry mates. The washer features high speed (700 RPM) spin drying without vibration. The gear case spins when the tub spins adding its weight as a stabilizing factor. All support points are supported by six rubber mountings which absorb vibration and reduce noise.

More New Products Page HL-41

ANNOUNCING

Two important fall home laundry industry meetings announced as we go to press:

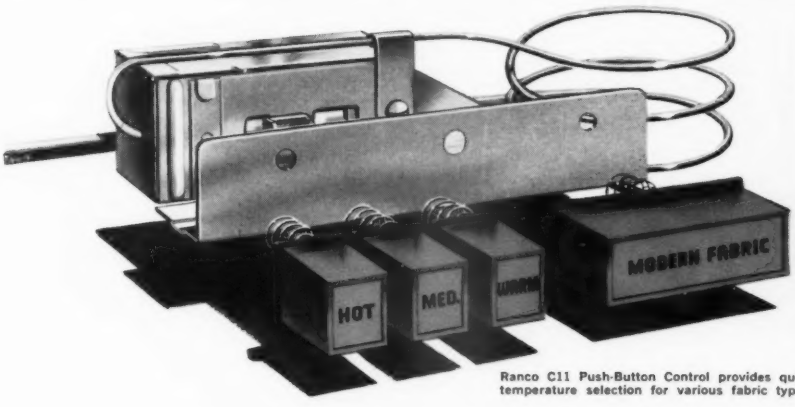
SIXTH ANNUAL INDUSTRY-WIDE PARTS AND SERVICE CONFERENCE, Edgewater Beach Hotel, Chicago, September 25, 1958, "AHLMA Service Revue."

and

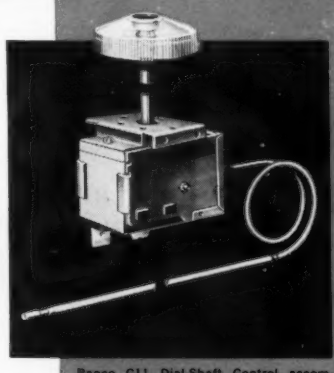
TWELFTH NATIONAL HOME LAUNDRY CONFERENCE, Chase Hotel, St. Louis, Mo., October 30-31, 1958, "The 'How To' of the Modern Home Laundry Basket."

Complete staff editorial coverage of these two important meetings will appear in MPM.

Ranco controls for your dryer



Ranco C11 Push-Button Control provides quick temperature selection for various fabric types.



Ranco C11 Dial-Shaft Control accommodates dial knob with indicated positions for drying various fabrics.

C11 DRYER CONTROLS

You design the dryer—Ranco designs the control. This formula for dependable clothes dryers has been proven with millions of Ranco controls in operation. The Ranco C11 Control (push-button or dial-shaft) is one basic type of Ranco Controls adaptable to your appliance designs.

- Coordinates with Ranco T20 Sequence Timer (below) using either dial or push-button temperature cycling control.
- Available with one or two auxiliary switches to manually control additional circuits with the dial.
- Mounting bracket has multiple holes for side or flush mounting. Specially designed brackets can be produced.
- Electrical rating (listed and approved) is 25 amps, 250 volts a.c. resistive rating, and 125 volt-amperes pilot duty at 125 volts a.c. inductive rating.
- Bright zinc plating with Iridite treated exterior finish.

T20 SEQUENCE TIMER

Timer switch, timer motor in a compact, enclosed unit tested for accurate performance. That's the Ranco T20 Sequence Timer designed to work with the C11 (above) to operate from one to a maximum of 4 circuits in various combinations, the two major circuits and two auxiliary circuits to provide the flexibility your dryer requires.

Switch operates in ambients from 35 to 150°F. Dust and lint-proof enclosure. Two-way clutch.

Cams adjustable for one or multiple timed sequences. Quick-break of major circuit contacts, quick-connect plus screw type on major terminals and only quick-connect for auxiliary terminals. Maximum electrical ratings, *Major circuits:* 25 amps, 115 and 230 volts resistive load and ½ h.p., 115 and 230 volts. Auxiliary circuits: 15 amps, 115 and 230 volts resistive load.

4-pole, synchronous *motor* is self-contained, 2.5 watt, hysteresis type. 1,800 rpm rotor speed at 60 cycles. Quiet operating nylon gears and pinions require no lubrication. Dial speeds possible to one revolution in 12 minutes. Clockwise or counter-clockwise rotation. 25, 50 and 60 cycles, at 115 volts; 50 and 60 cycles at 230 volts. Automatic disconnect of timer on completion of any timer cycle.

Typical Sequence Arrangements with Ranco T20

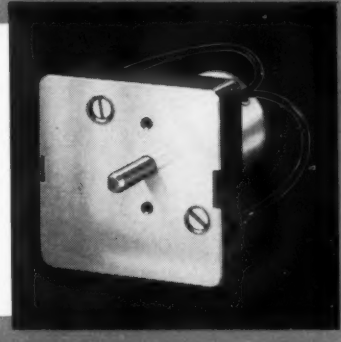
Single Sequence with Time Selector:
Operator selects total drying time. Heater shuts off before drum.

Single Sequence with Buzzer:
Timer motor runs continuously. Heater stops before drum. Signal sounds before end of sequence.

1.

2.

Other Selective Sequences:
(User selects the operating temperature of dryer, manually starting each sequence after "off".) Dial arrangements, timer used in conjunction with C11 control above: (1) Timer motor can run continuously for either sequence selected. (2) Timer motor can run continuously or intermittently for various sequences. One sequence can have the timer motor run continuously for fluffing or sprinkling operation, with the drum motor on and the heater off



RANCO T20 SEQUENCE TIMER—Smooth, quiet operation; quick, clean contact breaks; multiple-circuit for sequence flexibility; mounts in any position.

For specific information on how the new Ranco C11 Control and T20 Timer can be adapted to your drying equipment, write:

RANCO CONTROLS

Ranco®
INCORPORATED
COLUMBUS 1, OHIO

More than 100,000,000 Ranco Controls Proven In Use

A.B.T.
COIN CHUTE

STANDARD OF THE INDUSTRY

Year after year, leading manufacturers of commercial laundering equipment acclaim A.B.T. Coin Chutes as standard of the industry. And rightfully so, for these chutes are soundly engineered and constructed of the finest quality materials to assure long-term, dependable service. Various models are available to handle different coins and coin combinations. Our engineers will work with you in developing specific coin-handling and timing devices to meet your requirements.

A.B.T.

Division of Atwood Vacuum Machine Company

1400 Eddy Ave., Rockford, Illinois

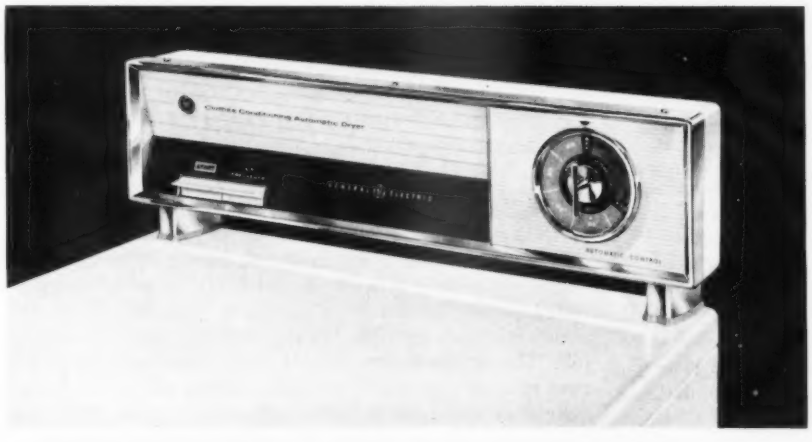
NEW YORK CITY • CHICAGO • DETROIT • KANSAS CITY • LOS ANGELES • SAN FRANCISCO • BEAVERTON, ONTARIO

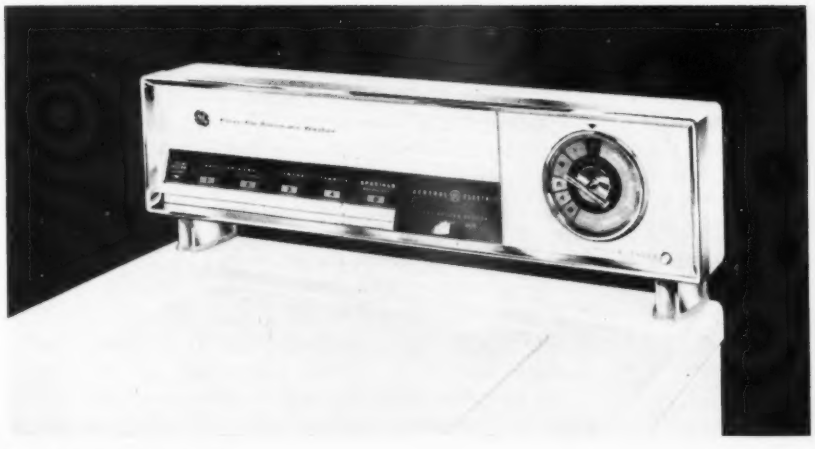
The latest in laundry appliances

→ *from Page HL-38*

Since Miss Pat Breithaupt (right) is not married, she could still be voted for if the happy day came before the MPM *contest is over. The O'Keefe & Merritt washer-dryer features simple set-n-forget dials, little noise, and wrinkle-free washing and drying.*

The new General Electric 5-cycle Filter-Flo washer and matching dryer (lower left) with automatically controlled high-speed drying system. On the washer, the operator has only to set one numbered key and turn the dial to the matching number. The dryer turns itself off when clothes are properly dried.





One Minute's Model 84 semi-automatic (below) that features a finger tip control panel with two-speed controls at waist-high level. Sunshine yellow and white are the colors obtainable.

FABRIC SOFTENERS . . .

a guest EDITORIAL FEATURE

by Rose V. White

• • •

THE home laundry fabric softener, comparatively a newcomer in the field of home laundry supplies, possibly holds the number one interest spot in today's home laundry picture. Dramatic benefits to be derived from use of this rinse additive, and the multiplicity of those benefits, have excited the interest of all concerned with home laundering.

Home laundry fabric softeners are probably appreciated most for their ability to restore softness and life to laundry-harshened washables, and to preserve the soft hand so desirable in new fabrics, at the same time reducing wrinkles and eliminating deep-set creases. Nevertheless — equally important to many are the anti-static properties and/or the aid to greater ironing ease. Color brightening properties in some of the fabric softeners are an added attraction. Homemakers and educators alike have been enthusiastic in their acceptance of these remarkable new rinsing aids.

The Home Laundry Industry has been quick to recognize the desirability of this product which can do so much to improve both the appearance and feel of the finished "family wash," laundered quickly and effortlessly with modern home laundry equipment. Proof of this acceptance lies in the fact that most manufacturers have been working on some type of injector or dispenser which would permit automatic addition of the fabric softener during the rinse. Such devices have already appeared on several automatic washer models.

Results obvious — can see and feel

You can both see and feel the difference in softness and anti-wrinkling when you use these fabric softener rinses. All washables are softened — all have fewer and less deep-set wrinkles. Most dramatic benefits may be observed on deep-pile fabrics such as terry cloth (bath towels and the like), tufted and chenille fabrics, and washable velveteen and corduroy. Corduroy garments truly become "wash-and-wear" clothing when rinsed with the fabric softener.

Sweaters, socks — all washable knitted things — can be kept as soft and fluffy as new with the regular use of the fabric softener in laundering. Harsh, boardy socks become soft and supple again — even darning is easier. Cotton knits are wrinkle-free and ready to wear as is.

This softening effect has special application for use on "baby things." What mother is there who doesn't make every effort to keep baby garments, blankets and towels soft and comfortable for her baby's tender skin? Diapers not only are softer and less wrinkled, but are also easier to pin.

Although the line-dried wash appears to benefit most from fabric softener rinses, users of dryers have seen the value of the fabric softener with dryer drying. The fluffing action of the dryer is enhanced when a fabric softener has been used, while problems of over drying are greatly reduced. Because the fabric softener lubricates each thread in the fabric and each fiber in the threads, an overlong period in the dryer is not so likely to produce the "dry feel" and deep-set wrinkles and creases associated with careless and too-long drying.

Not the least of the advantages to be gained by use of the fabric softener in conjunction with dryer drying is the ability of the rinse additive to minimize and even eliminate static electricity built up in fabrics of man-made fibers with the tumbling action of the dryer. This elimination of static-electricity in garments, whether line-dried or dryer-dried, is a boon to wearers of uniforms, lingerie, and other knitted wear of synthetic or man-made fibers. These garments no longer need to cling and "ride-up" in cold, dry weather. It is with these garments that the wash-bowl laundress probably has experienced her greatest satisfaction with the fabric softeners.

Eases ironing and brightens colors

Ability of the fabric softeners to eliminate the need for ironing or pressing with some washables, and to make any necessary ironing easier and speedier, is especially appreciated by the homemaker who has a large "family wash" to do each week. At best, ironing to most people is a tedious job. Homemakers are quick to recognize and appreciate any product or work method which will relieve that tedium — will make the job quicker and easier. With one fabric softener, tested by a consumer panel of 5,000 homemakers across the country, this improved ironing ease and elimination of need for ironing in many cases was recognized and mentioned again and again.

The ability of the fabric softener to leave fringed edges untangled — like new — has made it especially useful for bedspreads and washable rugs with fringed ends or fringed edges.

Color brightening properties of some of the fabric softeners are easily recognized, especially on deep-pile fabrics such as chenille, corduroy, and terry cloth, and is particularly noteworthy on shag rugs.

As in the case with any new household product which is completely different in character from anything previously marketed, the fabric softener has needed, and still needs, to be explained and interpreted. This need for understanding the product has not been confined to consumers

. . AMAZING HOME LAUNDRY AIDS

alone. Everyone involved in the field of education in home laundering has a need for understanding this entirely new product which does a job that no other home laundry product has ever done. Educators, magazine editors, utility home service departments, and manufacturers' home service staffs, as well as their sales staffs, have all shared in both this learning process and in the dissemination of this knowledge.

Not least among those who have needed to be educated in the characteristics of this product is the grocer himself. The grocer should know what the product will do, so he will give it proper display location; not with cleaning waxes and other household cleaners, but with other home laundry supplies.

Not a water softener

There are a number of basic facts about the fabric softener that anyone involved with the product should know. *The fabric softener is not a water softener* and does not function as such, although in its own capacity, it is effective in both hard and soft water. The effect of the fabric softener is upon the fabric — that of the water softener is upon water itself and indirectly on the fabric.

The fabric softener is not a detergent, a bluing, or a starch, and should not be used as such. In fact, it is not compatable with these products and therefore should not be combined with them.

Although the fabric softener is effective in varying degrees when there is still some soap or other detergent in the rinse water, it is *most* effective when used in a final clear deep rinse. *Agitation of washables for two or three minutes in the rinse* to which the fabric softener has been added *will give the best results.* This agitation gives the fabric softener a chance to be distributed over all the fabric surfaces in the washload so that little, if any, is lost down the drain when the rinse is removed.

If a separate bluing is used in doing the wash, the fabric softener should be used *after the bluing.* If articles are to be starched, the fabric softener *should be used before starching.* Used before the starching operation, fabric softeners increase ease of ironing without affecting the character of the starch finish.

Once the fabric softener is picked up on the cloth it is not removed by water alone. However, soaps and other detergents do remove this rinse additive; therefore it needs to be used at each laundering.

A little fabric softener goes a long way. Because the fabric softener is attracted to the fabric in the rinse and is not lost down the drain, recommendations for amount to be used are based on pounds of clothes, not on gallons of water.

Since there is such an interdependence between manufacturers of home laundry equipment and manufacturers of home laundry supplies, problems which affect one may very well affect the other. Such has been the case in making recommendations for use of the fabric softeners in various types of automatic washers. With almost twenty makes of automatic washers on the market, some of them with final rinses dissimilar to all others, the problem of when best to add the fabric softener has not been an easy one. No single set of directions will apply to all automatic washers, while bottle labels do not permit much more than simple general directions for use.

How to use — important

Many manufacturers of home laundry equipment have included a section on the use of fabric softeners in their instruction booklets. This has not solved the problem for those homemakers who look to the manufacturer of the fabric softener for instructions on how best to use this product with the equipment they own. One fabric softener manufacturer has met this problem by printing a simple "How To Use" folder. This folder, prepared with the help and advice of home service and home service departments of various manufacturers of home laundry equipment, embodies directions for use of the fabric softener with the various types of final rinses in washers: final deep rinse, continuous deep rinse, continuous overflow, spray overflow, etc. It has been offered to utility home service departments, to educators in schools, the Agricultural Extension Service and, through various magazines, to readers. It has served as an effective educational piece.

Usually when a new product appears on the market, especially in the field of household supplies, most people want to know what it is. Such has been the case with the home laundry fabric softener. The consumer naturally asks: "What is the fabric softener?" *to next Page* →

ROSE V. WHITE . . . has had an interesting background for her present work. She was a home economics teacher in a junior high school at Chattanooga, Tennessee. She was a county home demonstration agent, Arkansas Agricultural Extension Service, for seven years.

During World War II Miss White was a WAVE officer, U. S. Naval Reserve, and, following the end of hostilities, was Assistant BOQ officer responsible for feeding and housing 150 officers at a Naval station in Hawaii.

This was followed by experience as an interviewer and reporter on consumer survey, Horticultural Department, Purdue University, where she was also a Councilor, Women's Residence Halls, and a Resident Advisor, Home Management House, School of Home Economics.

For two years Miss White was Home Economist and Director of Kitchen Planning, American Kitchens, AVCO Manufacturing Corporation, where her duties included lecturing and holding training schools on kitchen planning.

In her present position as Laundry Specialist, Home Service Department, Corn Products Refining Company, the author is responsible for laundry products tests in Home Service Department Laundry, preparation of package directions on six home laundry products, and for consumer publications on laundering.

About twenty fabric softeners are currently being offered for home laundering, with two in national distribution. All have as a basic ingredient a dialkyl quaternary ammonium salt in an alcohol and water solution. The alcohol serves to dissolve the quaternary ammonium salt, while the water insures dispersion when added to the rinse water. Dye and perfume may have been added for aesthetic purposes.

There is a long, fairly-involved explanation of what happens chemically when the home laundry fabric softener is added to the final clear rinse. The average consumer, however, perhaps remembering some of his high school chemistry, understands best the following: the fabric softener has a positive charge, or is "cationic;" most fabrics are negatively-charged, and in the rinse water the negative charge of the fabric attracts the positively-charged fabric softener and thus the fabric softener is picked up and retained on the fabric. This explains why so little fabric softener is needed. It also explains why, for best results, the washload should be agitated a minute or two in the rinse to which the fabric softener has been added.

The fabric softener owes its anti-static properties to the water loving nature of the quaternary ammonium salt. Static electricity in garments is built up on the surface of fabrics when two materials of two different fibers are rubbed together. This electrical charge is not usually a problem with fabrics of natural fibers, such as wool and cotton, because these fibers are water loving and usually retain enough moisture to form a path for dissipating the electric charge, but is a problem with the man-made fibers. Synthetic fabrics treated with a fabric softener never dry out completely. The moisture level in the cloth is controlled at optimum level and any static charge is carried away.

And what is the history of this amazing new home laundry fabric softener? Who discovered it and how? The answer is that the fabric softener is not so new. True, it has appeared as a home laundering product for only about five years, and part of that time only in test markets. But, as a textile softener, fabric softeners have been used by the textile industry for more than twenty years, especially in the finishing of rayon goods, to impart smoothness and to improve the draping quality of the finished fabric.

Many new fabrics today have been finished with one of the textile softeners to give them the fine appearance and feel we appreciate so much in new fabrics. Washing removes these finishes from fabrics. Commercial laundries, especially diaper services, have used textile softeners for several years. But it has only been since the introduction of the home laundry fabric softener that the homemaker has had a product with which she could restore softness to her washables laundered at home.

The growing demand for home laundry fabric softeners, and for more information about them, seems to indicate that here is a product which will become a normally-accepted necessity for home laundering. No one product in the field of home laundry supplies can claim so many and such dramatic benefits as can the home laundry fabric softener. It is a boon not only to the homemaker, but to the Home Laundry Industry as well.

Future of Home Laundry → *from Page HL-26*

BY *Fred H. Holt* GENERAL MANAGER
HOME LAUNDRY DEPT., GENERAL ELECTRIC CO.

A serious problem—clothing identification

One of today's biggest problems for the home laundry industry really lies outside the industry's scope. Yet, it is up to us to bring about a solution. As manufacturers we have designed and are making home laundry equipment that will wash fabrics all the way from the most delicate to the newest wash-and-wear clothing. We have developed machines that can be operated easily by the housewife, that make it possible for her to have the proper wash cycle with no trouble at all. This is fine, but still we receive from editors of women's magazines and home economists a big challenge: Find a way to make it easy for the housewife to identify properly the article she is washing and select the right cycle.

If we in the industry are to build confidence in our products and achieve their wider use with resulting expanded sales, we must lead the garment industry to the use of a permanent washing cycle identification attachment to the clothing. This gives our industry the opportunity to specifically identify a number of washing cycles which can be recommended standards. The garment industry can then select the proper one for an item to insure best results and permanently identify the garment.

It is by leadership of this type that the home laundry industry can insure that the consumer can make greater, more effective and easier use of home laundry equipment with the growing number of new fabrics being developed.

BY *Jack Lee* MANAGER
LAUNDRY EQUIPMENT DEPT., WESTINGHOUSE ELECTRIC CORP.

Acceptance of built-in laundry equipment increasing

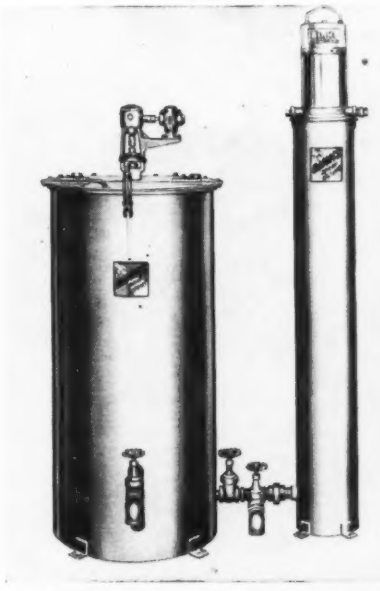
We feel that there is a very definite trend in the Home Laundry field for new and startling products that will take the laundry out of the basement (the most inconvenient place in the house to have a laundry) and place it in other areas of the house. It will be necessary, however, for basic changes in laundry equipment in areas other than gimmicks and gadgets for this to be accomplished.

We have noticed a strong increase in acceptance of built-in applications of laundry equipment. There is a definite trend towards improvements in styling and operational changes to meet home location requirements. Changes in operation will be dictated by new wash-and-wear fabrics.

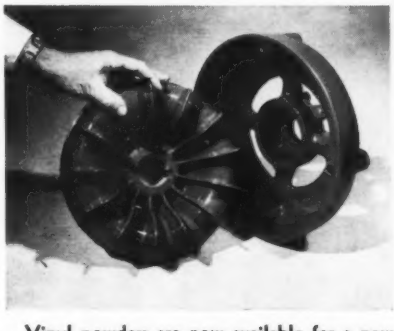
Basically, we see the business as a very strong and dynamic one that will continue to show improvement and constant unit expansion over the next five years.

Home Laundry Components

→ *from Page HL-29*



For high volume paint circulating systems, the Binks Manufacturing Company, 3122 Carroll Ave., Chicago, has developed the "Kayo" series of paint pumps designed to make all large industrial finishing operations more economical and efficient.



Vinyl powders are now available for a new method to coat metals. The new powdered resins, named CORVEL vinyl fusion bond finishes, are specially processed for use in the WHIRLCLAD process, a fluidized finishing process available under license from Polymer Processes, Inc., Reading, Penna.

Parker-Kalon announces an improved self-tapping screw especially developed for use with thin gage metal sheets. For free test samples, write to the Parker-Kalon Division, Clifton, New Jersey.

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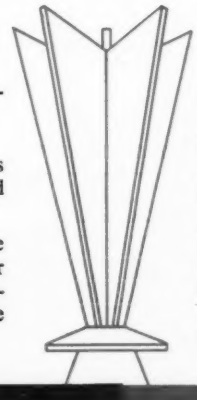

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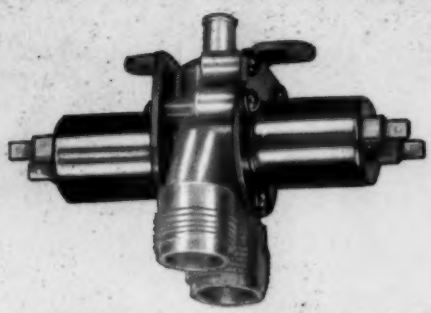
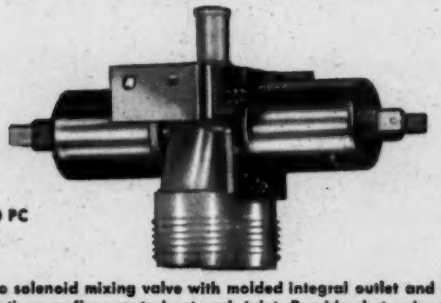


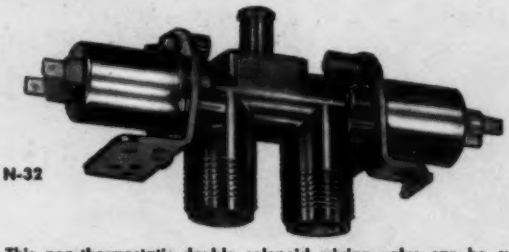
N-10

A new double solenoid non-thermostatic valve with molded integral outlet and incorporating the flow control feature in the outlet. Hot, mixed and cold water is provided.



N-10 PC

A two solenoid mixing valve with molded integral outlet and either restrictions or flow controls at each inlet. Provides hot, mixed and cold water. Inlet flow controls give a degree of mixed temperature compensation with varying inlet pressures.



N-32

This non-thermostatic double solenoid mixing valve can be supplied with flow control feature. Provides hot, medium and mixed water.

N-26

A three solenoid non-thermostatic mixing valve, providing control of hot, medium, mixed, cool and cold water. Has flow control feature in outlet and balancing inlet restrictions to compensate for inlet pressure differentials.

N-23

A non-thermostatic mixing valve having a third solenoid for control of cold water to the condenser system of a combination washer-dryer. Condenser water flows from an auxiliary outlet. Water through the main outlet may be hot, mixed or cold. Can also be applied to automatic washers to control water supply and operate a conditioner or detergent dispenser.

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We produced the first valve for condenser clothes dryers.

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The first valves with integral solenoids were produced by Dole.

Dole designed and sold the first solenoid operated valves for combination washer-dryers including in one package control of wash and rinse water and the water needed for the condenser system.

The first solenoid valves for portable dishwashers were Dole products.

Dole designed the first storage type fabric conditioner dispenser.

The first single solenoid valve for economy model clothes washers was a Dole development.

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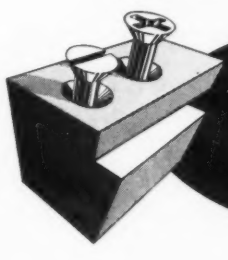

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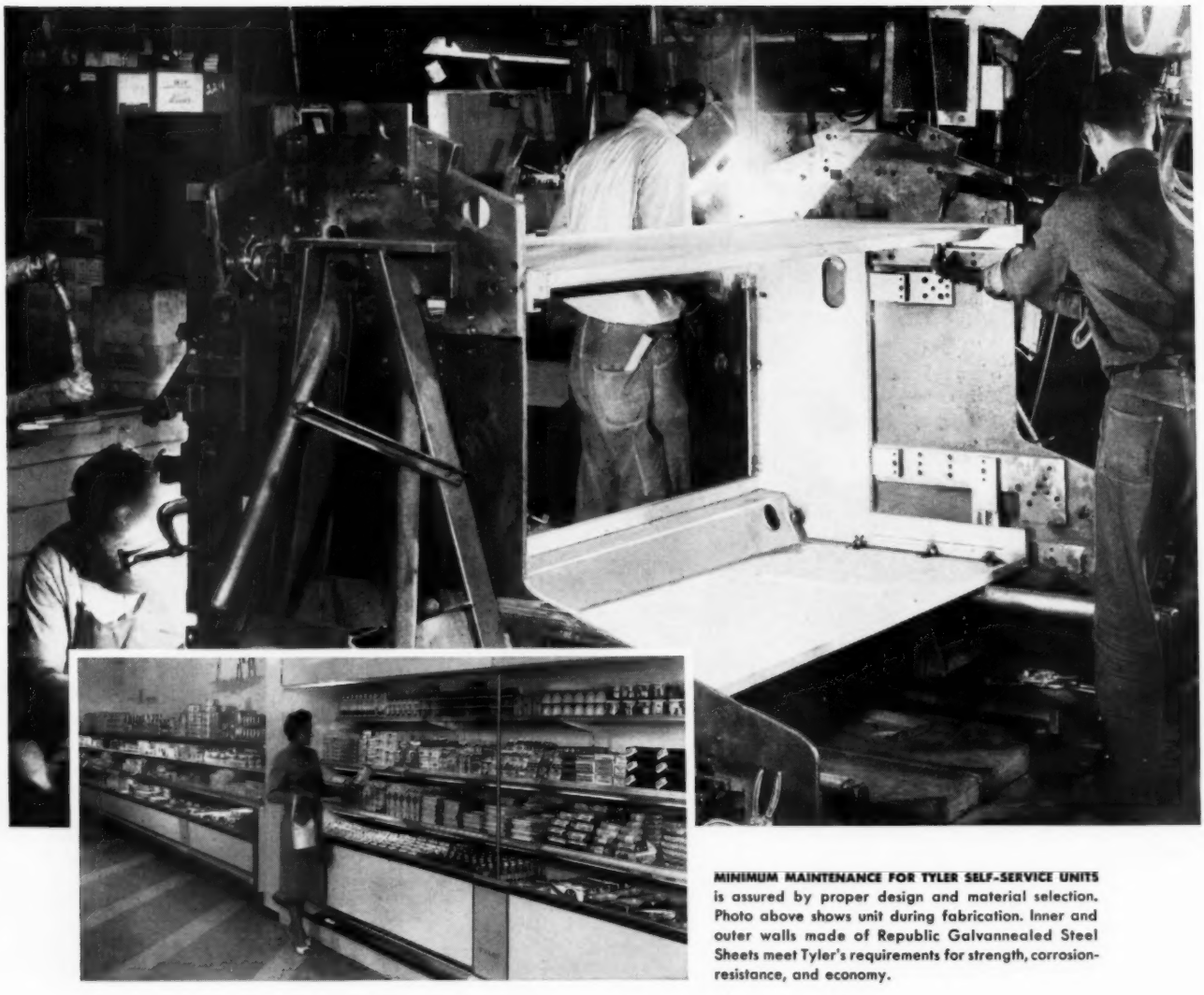

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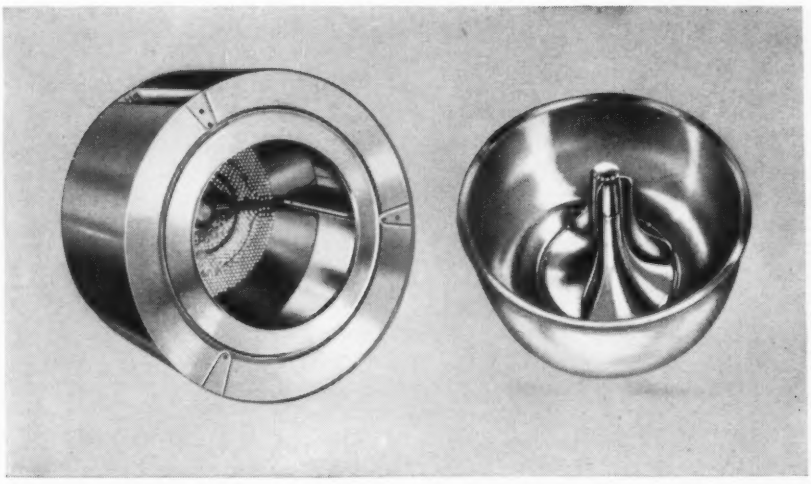
Your Republic representative will be glad to discuss the many advantages of Republic Galvannealed Sheets in relation to your product or production requirements. Contact him today, or mail coupon for further information.



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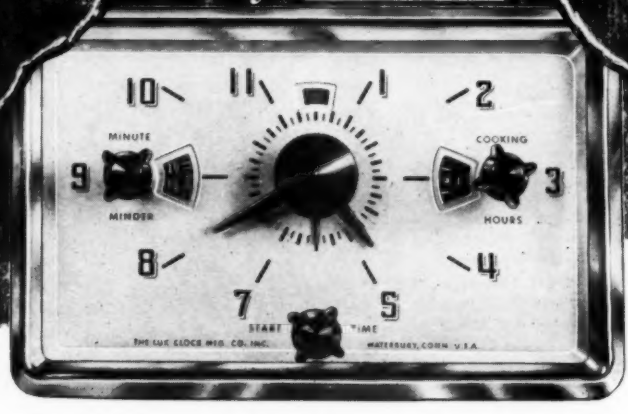

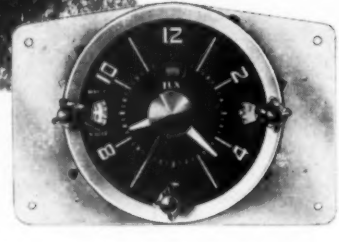

Here's a smartly styled, quality Range Timer . . . in a real handy size.

Look at these outstanding features:

- EXCLUSIVE ONE KNOB TIMING—starts oven immediately . . . shuts it off automatically.
- MINUTE MINDER TOP-SIDE CONTROL
- SYNCHRONOUS MOTOR equipped with lube-less bearings.
- 3 DIMENSIONAL STYLING
- LOW PRICE

The Precision Performance of LUX Timers can be matched only by using LUX features.

LUX . . . first . . . for lasting TIME

THE LUX CLOCK MANUFACTURING CO., INC.

95 JOHNSON STREET • WATERBURY 20 • CONN.

LUX Time — YOUR TIME REMINDER LINE

COMING FEATURES

DESIGN

NOISE CONTROL OF DOMESTIC APPLIANCES

STRATO FLIGHT BATHROOM SCALE

FABRICATION

STAINLESS STEEL PROCESSING FLAWLESS JOB AT KRUEGER

FINISHING

- SPECIAL FEATURE—PORCELAIN ENAMEL ON ALUMINUM COMES OF AGE

NEW FINISHING SYSTEM BOOSTS PRODUCTION CAPACITY 300%

SAFE TRANSIT

WIZARDRY IN MATERIALS HANDLING

Presstime News

Pace, Inc., Mansfield, Ohio, manufacturers of thermal controls, recently announced a newly-elected group of officers. They are: **Willis F. Carto,** president; **A. S. Irvine,** vice president, treasurer, and general manager; and **W. A. Calhoun,** secretary.

Irvine brings to his new duties a thirty-year background with Montgomery Ward and Firestone Tire & Rubber Co. in selling, merchandising, and servicing consumer product goods, and served most recently with Westinghouse as sales training manager in major appliances.

PEI Appoints Product Engineering Manager

The Porcelain Enamel Institute has announced the staff addition of William E. Pierce who has been appointed to the newly-created position of manager of product engineering. The new position is part of an expanded product

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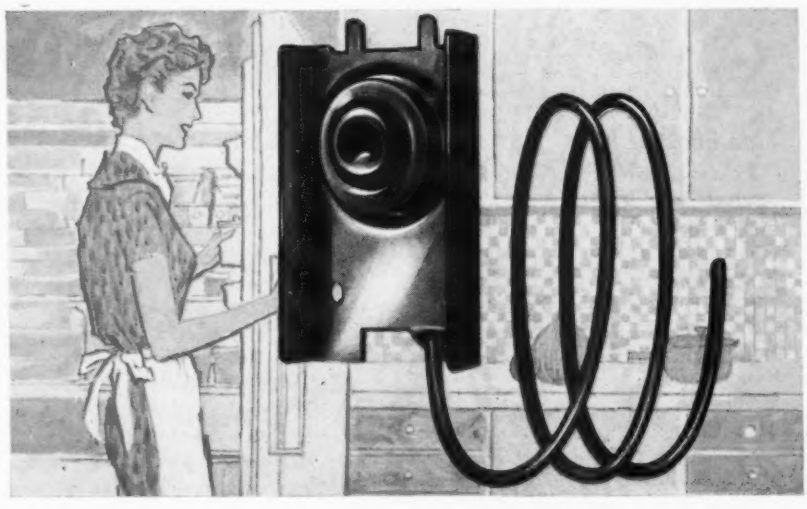
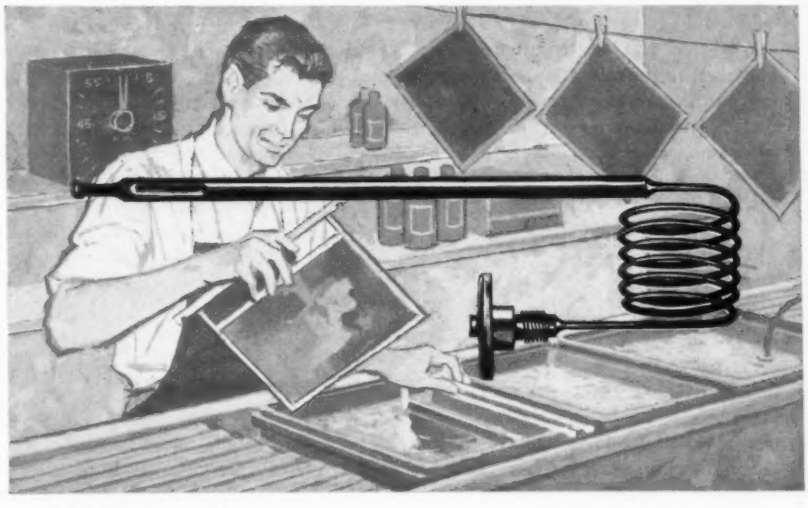
BRIDGEPORT'S LOW-COST ANSWERS

to your temperature sensor* needs!



***BELLOWS** assemblies provide accurate control with no drift for your cold or heat sensing applications such as oven and refrigerator controls. They simplify design, cut assembly costs, save space and weight and replace costlier sensing devices. Custom-engineered as a complete "package" in many metals. WRITE FOR BELLOWS BULLETIN K-105!



***DIASTAT®** assemblies eliminate the need for ambient temperature compensating devices in many applications. These low-cost stainless steel "packaged" units offer extreme accuracy with no resetting at temperatures up to 650°F . . . used in appliances and other controls where a short stroke is desired. WRITE FOR DIASTAT BULLETIN K-609!

Mr. Controls

Robertshaw-Fulton CONTROLS COMPANY

BRIDGEPORT THERMOSTAT DIVISION • Milford, Conn.

NEW INDUSTRIAL LITERATURE

Plan Book of Metal Mouldings

Plan Book of Metal Mouldings for all products in all metals from a specialist in stainless steel is available in a well-illustrated booklet. Rings for washers, bezels for television, dinette trim and aprons, refrigerator kick plates and escutcheons are some of the many mouldings that can be made. For the booklet, write Dept. MPM, Pyramid Mouldings, Inc., 5365 W. Armstrong Ave., Chicago 30, Ill.

Surface Element Control Completely Described

A booklet is available which describes all electric surface element temperature controls, both from the standpoint of the user and for the range manufacturer. Said to be low in cost, the unit is easy to install because the compact control elements are electric. Any selected increment of temperature from 100° F. to 485° F. is reached quickly and then uniformly maintained, according to the manufacturer. For complete data, specifications, and installation drawings, write for Bulletin 576, Dept. MPM, King-Seeley Corp., Ann Arbor, Mich.

Specialized Cleaners for Many Tasks

Technical data sheets are available on a wide variety of cleaners for many different applications. One is an alkaline, low foaming type cleaner developed for economical power washer applications. Another is a buffered alkali especially compounded to eliminate etching or corrosion in cleaning aluminum. A general purpose cleaner is also available, which is compounded for still tank applications. A general purpose compound for phosphatizing that provides a paint bond with good adhesion, according to the manufacturer, is also available, as well as a special compound that cleans and phosphatizes in one operation. These data sheets that are available are designated K-11, AL-2, K-1 Alkali, K-4477, SK-1, and Phos-Film 4222, 4353. Write Dept. MPM, L. R. Kerns Co., 2659 E. 95th St., Chicago 17, Ill.

Zinc-Coated Surface Defies Corrosion

According to a manufacturer using zinc-coated steel, the surface defies corrosion and takes paint beautifully. This leading manufacturer of housewares, such as kitchen canister sets and bread boxes, finds that electrolytic zinc-coated steel is a natural for its purposes. A free booklet completely describes how this electrolytically-fused zinc coating is so tight that not even the severest bending, drawing or crimping operation will flake or peel off its surface during fabrication. For the free booklet entitled "Weirzin", write Dept. R-19, Weirton Steel Co., Weirton, W. Va.

Finishing Systems for any Metal Product

Metal office furniture is only one of the many types of metal products that can be finished in specialized equipment described in an available catalog. Methods, equipment requirements, and possible production layouts can be easily discussed with the engineers of the company. Complete conveyorized finishing systems, metal parts, washers, metal cleaning and rust proofing machines are but a few of the types of products described in catalog A-658. Write Dept. MPM, The R. C. Mahon Co., Detroit 34, Mich.

Keeping Costs Down as Temperatures go Up

The above head is the subject of a big, illustrated booklet which shows how burning tools can lower costs in a porcelain enameling furnace. According to recent information from U. S. Porcelain Enamel Co., Los Angeles, drop rods have served for five years in a 1550°F. furnace, and one year in another type furnace. These rods are said to have excellent high temperature strength, and can handle heavy loads at burning heat, without stretching. They are also said to have high temperature corrosion resistance, that enables formation of only a thin, tightly adhering protective film. For the booklet, write Dept. MPM, The International Nickel Co., Inc. 67 Wall St., New York 5, N. Y.

Catalog of Money Saving Metalworking Ideas

A booklet describing universal shearing and forming machines is available that outlines how to save time, labor and material in every metal-working industry. Various shapes that can be formed in metal are steam table tops, metal doors, sink tops, and a wide variety of metal forming operations. Six different machines are described that accomplish these tasks and also straight cutting, circle cutting, and inside square cutting to name a few. For the free folder, write Dept. MPM, American Pullmax Co., Inc., 2455 N. Sheffield Ave., Chicago 14, Ill.

Ideas in Hardware

A "Toe-Touch Door Opener" for Hotpoint's 1958 automatic dryer is merely one of the many different types of hardware available and described in the "Idea" file now available. A secure, double nylon roller catch releases or engages under 10-lb. pressure on the Hotpoint door opener. The release mechanism gently presses the door open when activated through a connecting wire rod. It is said that there is absence of complicated mechanisms which simplifies installation and minimizes maintenance. For the Idea File, contact Dept. MPM89, Amerock Corp., Rockford, Ill.

Air-Inflated Grinding Wheels Up Contact Area Thirty Fold

According to literature available on air-inflated grinding equipment, it is now possible to increase buffing and polishing output up to 3000 per cent on flat work, and 600-700 per cent on contours. It is possible by using resilient air-inflated grinding wheels. Another type of grinding wheel available is called the expanding type, and it is designed for use with coated abrasive bands or sleeves. Its function is to provide the necessary support for the coated abrasive band and a means for mounting on the power source. When the wheel rotates, the centrifugal action forces the flexers into complete peripheral contact with the coated abrasive band. For more information, contact Dept. MPM, Nu-Matic Grinders, Inc., 8224 Carnegie Ave., Cleveland 3, Ohio.

Information on Extruded Aluminum Service

A complete service is available for helping manufacturers make extruded aluminum save time and money. This

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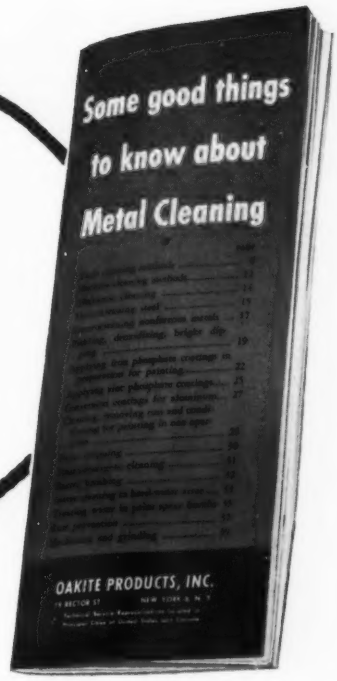
WHICH METAL-CLEANING JOBS WOULD YOU LIKE TO IMPROVE?



¶ Are you cleaning metal in the most economical way? *See page 9 of Oakite's FREE booklet on Metal Cleaning.*

¶ Are you cleaning metal the fastest way? *See page 12.*

¶ Do you need room-temperature cleaning combined in one operation with temporary rustproofing? *See pages 12 and 14.*

¶ Do you know the advantages of *alkaline* pickling? *See page 21.*

¶ Have you compared the values of iron phosphate coating and zinc phosphate coating in preparation for painting? *See pages 22 and 25.*

¶ Can you use a cleaner that removes rust and oil at the same time; often eliminating all need for pickling? *See page 30.*

¶ Do you have trouble stripping epoxy resins, pigment residues, phosphate coatings and under-paint rust? *See page 31.*

¶ How do you clean parts that are too large to be soaked in tanks or sprayed in machines? *See page 31.*

¶ Are you getting full profit out of your finishing barrels? *See page 32.*

¶ What do you do when oversprayed paint neither floats nor sinks in your paint spray booth wash water? *See page 35.*

¶ Do you need better protection against rusting in process or in storage? *See page 37.*

Here is the full table of contents of Oakite's 44-page illustrated booklet called "*Some good things to know about Metal Cleaning*".

Tank cleaning methods
Machine cleaning methods
Ultrasonic cleaning
Electrocleaning steel
Electrocleaning nonferrous metals
Pickling, deoxidizing, bright dipping
Applying iron phosphate coatings in preparation for painting
Applying zinc phosphate coatings
Conversion coatings for aluminum and zinc
Cleaning, removing rust and conditioning for painting in one operation
Paint stripping
Steam-detergent cleaning
Barrel finishing
Better cleaning in hard-water areas
Treating water in paint spray booths
Rust prevention
Machining and grinding

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OAKITE
MATERIALS · METHODS · SERVICE
SCIENCE

Technical Service Representatives in Principal Cities of U. S. and Canada
Export Division Cable Address: Oakite

FREE For your copy of "*Some good things to know about Metal Cleaning*" write to Oakite Products, Inc., 17 Rector St., New York 6, N. Y.

American Motors Shows Profit

Record Rambler sales and improved Kelvinator operations gave American Motors Corp. a profit of $14,583,416, equivalent to $2.61 a share, for the first nine months of its fiscal year, against a loss of $6,467,926 in the corresponding 1957 period. George Romney, president, said that earnings in the quarter ending June 30 totaled $7,253,785, compared to a loss of $1,135,455 in the June, 1957 quarter.

Westinghouse Net Up In Second Quarter

Net income of the Westinghouse Electric Corp. in the second quarter of 1958, after provision for taxes, was $17,070,000, an increase of four per cent over the $16,417,000 earned in the second quarter of 1957, Gwilym A. Price, board chairman, has reported.

The net income was equal to 97 cents a common share, an increase of 2.1 per cent over the per share earnings of 95 cents in the second quarter a year ago.

Maytag First-Half '58 Earnings Parallel 1957

With net sales of the Maytag Co., Newton, Iowa, during the first six months of 1958 substantially equal to those in the first half of 1957, net earnings for the current six months showed a 20-per cent increase over the same period a year ago, according to first-half results announced recently by Fred Maytag II, president.

Net sales of the company and its domestic subsidiaries amounted to $47,970,163 for the first six months of 1958, compared with $47,988,757 in the first half of 1957.

"This sales volume was achieved despite the fact that total sales in the home laundry industry as a whole, as reported by the American Home Laundry Manufacturers Association, were approximately 13 per cent below those for the 1957 first half," Maytag said.

Kawneer Second Quarter Shows Gain

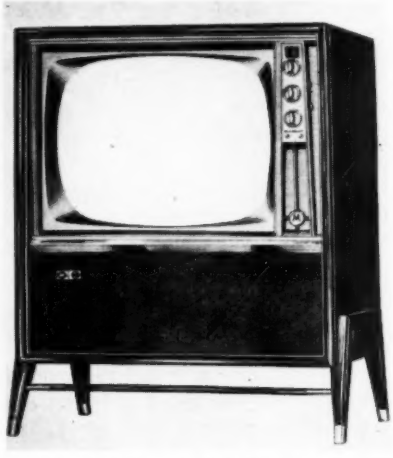
Kawneer Co., Niles, Mich., has reported second-quarter earnings of $145,406, or 16¢ per share, on the 893,582 shares outstanding. This compares with earnings of $86,192, or 10¢ per share, in the first quarter of 1958.

Lawrence J. Plym, president, said that "Highly competitive business conditions and depressed prices have continued throughout the year. At the present time, we have indications of a slight upturn in business, and this should provide a stabilizing influence for future pricing of our products in the industry."

Motorola Adopts Bronzeless Gold Finish

Motorola, Inc., Chicago, is reported to have adopted a new bronzeless gold finish on a recently-introduced line of television sets.

The entire front of the cabinet housing above the speaker section, including the control panel area of the new 21-inch set pictured, is molded of one piece of high impact plastic. This section is then sprayed with a single coat of the new bronzeless gold finish, which is said to be free from tarnishing and staining, common with some bronze



powder finishes. It has better than 3H pencil hardness, and has a soft metallic luster.

Handicapped Employees Proved Above Average, Report

An overwhelming majority of the more than 1,000 physically handicapped employees of the Du Pont Co. have achieved average, or better, levels of job performance, safety, and attendance, according to a company-wide study just completed by the Employee Relations department.

Norge Sales at All-Time July High

July sales of Norge home appliances to distributors were the greatest in the 31-year history of the company, Judson S. Sayre, president of the Norge division of Borg-Warner Corp., reported. Volume was 17 per cent ahead of the like period last year, he said. The peak topped the best previous July in 1956 by 10 per cent, and July in the record Norge year of 1955 by 15 per cent.

July normally represents about 6.7 per cent of our annual volume, Sayre added. He attributed the increase mainly to expanding sales of home laundry equipment.

"Automatic clothes dryer sales jumped 87 per cent, and automatic washers, sparked by the Dispensomat, registered a substantial 17 per cent gain," Sayre reported.

Ranges showed gains also, in what was the best month since October, 1957. "The record confirms our belief that the home appliance industry will come back sharply during the fourth quarter," Sayre added.

Gas Incinerator to get Big Push

Reportedly the first all-out major market campaign to sell the new smokeless-odorless gas incinerator will be launched in Chicago on September 11, and will be carried on through October with manufacturers, gas utility companies, and dealers cooperating.

The program was announced by William Hebert, chairman of the Gas Incinerator Div. of the Gas Appliance Manufacturers Association. The entire Chicagoland market, including parts of Indiana and Wisconsin, will be covered in an intensive sales drive. Four utility companies are laying plans for their participation, and 32 other utilities serving the area are being invited to join in the campaign.

Designer, Ad Executive to Speak at PEI's 27th Annual Meeting

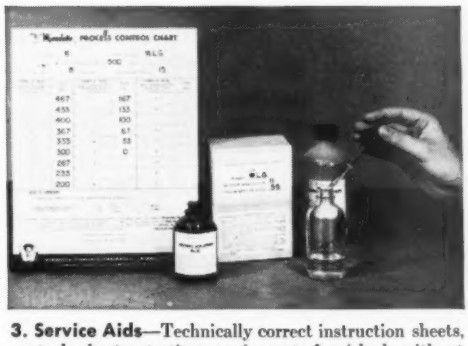
A well known industrial designer and a recognized authority in the areas of advertising and consumer markets are among the featured speakers scheduled for the Porcelain Enamel Institute's 1958 Annual Meeting at The Greenbrier, White Sulphur Springs, W. Va., September 25-27. Theme of the meeting will be on marketing which will include the subjects of sales promotion, publicity, industrial design, advertising, and industrial research.

Peter Muller-Munk, famous industrial

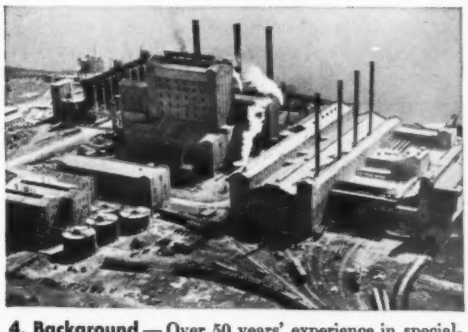
1. Technical Service — Factory-trained representatives, quickly available when needed; backed by factory specialists for a prompt solution to your problem . . . and kept up to date on latest metal-finishing practices.

2. Research — Extensive, modern facilities, including: pilot multi-stage spray washer, complete pilot-plating line, nuclear studies for Cleaner Research (in which we have pioneered). All staffed with experts — the best in the industry!

Try Wyandotte's winning combination!



3. Service Aids—Technically correct instruction sheets, control charts, testing equipment furnished without additional charge.



4. Background — Over 50 years' experience in specialized chemicals assures you of the best products, methods.

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You get Wyandotte's capable technical service, extensive research, helpful service aids, and vast experience in metal finishing — a combination that means better results at lower cost for you. Contact us today! *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California. Offices in principal cities.*

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J. B. FORD DIVISION

THE BEST IN CHEMICAL PRODUCTS FOR METAL FINISHING

designer, will discuss "Industrial Design as a Tool of Marketing." Managing partner of Peter Muller-Munk Associates, Pittsburgh, his clients include some of the industrial giants of the U. S. A Fellow and former president and chairman of the American Society of Industrial Designers, he is now serving a two-year term as the first president of the International Council of Societies of Industrial Designers.

Evaluating the area of "Advertising as a Tool of Marketing" will be the noted magazine publishing executive Peter E. Schruth, vice president and executive director of advertising for the Saturday Evening Post. At the age of 37, he was named vice president of Curtis Publishing Co., the firm's youngest vice president.

ARI Issues Standard

Recognizing the development of new types of heat-operated air-conditioning units, the Air-Conditioning and Refrigeration Institute has issued the first ARI Standards for such units, it was announced by George S. Jones, Jr., managing director of ARI.

Titled ARI Standard 250-58, "Unitary Heat-Operated Air-Conditioning Equipment," the new Standard applies to units "whose major energy input is in the form of heat; either directly from gas or oil combustion, or from such energy sources as hot water, steam, or electric resistance units."

The new Standard applies to factory-made "residential, commercial, and industrial heat-operated air-conditioners or matched assemblies which normally include an evaporator or air-cooling coil, a heat-operated cooling apparatus, and may include a heating function as well."

The publication does not apply to the rating and testing of individual assemblies, such as boilers or coils, for separate use.

Maytag Ups Dryer Production and Employment

A step-up in production of clothes dryers, and subsequent recall of approximately 130 employes, was announced recently by officials of the Maytag Co., Newton, Iowa. During June, the firm recalled 275 persons because of increased orders for its home laundry products.

Maytag sales during the first six months of 1958 approximately equaled sales in the first half of last year, it was announced. Employment at the appliance firm now also nearly approximates that of a year ago.

Central Enamelers Golf Outing

The Annual Golf Outing of the Central District Enamelers Club wil be held Saturday, September 13, 1958 at the Moundbuilders Country Club at Newark, Ohio. "Tee off" time until 12:00 noon, and buffet dinner served at 6:30 PM.

Custom Kitchen Designing Available to RCA Whirlpool Dealers

Custom kitchen designing by a staff of a leading national consumer publication, complete with sales-making perspective drawings, is now available at low cost to RCA Whirlpool dealers. The new service, recently announced by Whirlpool's general manager of the kitchen division, Charles A. Reinbolt, Jr., will make it possible for any RCA Whirlpool dealer to submit to his kitchen prospects black-and-white or full color renderings of the proposed kitchen, a detailed floor plan and elevation, color suggestions, and a complete list of equipment in a matter of days after the original measurements have been made.

The program represents a tie-in between Whirlpool and *Living For Young Homemakers* magazine. Dealers need only send a two-page questionnaire which contains a floor plan of the present kitchen to the Living-Designed-Kitchen-Laundry Center of the magazine. The kitchen design staff will prepare the material and send it back in a matter of days.

RCA Whirlpool Warranty Card Offers Interesting Information

A survey of several hundred warranty cards received from early buyers of RCA Whirlpool gas refrigerators revealed that 30 per cent of the first RCA Whirlpool gas units went to those who were replacing a gas refrigerator 16 or more years old. The company offered gas refrigerators for the first time in early June.

Another 10 per cent of early gas refrigerator purchasers were replacing electrics 16 or more years old. The two oldest refrigerators replaced were electric refrigerators, 29 and 27 years old.

The average age of all refrigerators replaced was 12 years.

The survey also turned up the fact that 56 per cent of the RCA Whirlpool gas refrigerator buyers had been using gas refrigeration, 34 per cent had depended on electricity, and 10 per cent were buying a refrigerator for the first time.

Fifty-six per cent of the buyers traded in their old unit, and another 20 per cent kept it. Another 10 per cent sold the old one themselves, 9 per cent disposed of it in another manner, such as giving it away, while only 5 per cent found it necessary to junk the old unit.

Of the new refrigerators purchased, less than 3 per cent were smaller than 10 cu. ft., while among those replaced, 75 per cent were smaller than 10 cu. ft.

Aluminum Traffic Signs to Increase Driving Safety

Nearly 4,000 dark green and white directional signs, utilizing 200,000 pounds of aluminum for the signs, and 260,000 pounds of steel for the supporting structures, are being constructed and installed by Federal Sign and Signal Corp., Chicago for the new Illinois Tollway.

The longest sign under construction is 26 feet in length, and the tallest stands 14 feet high. Approximately 25,000 letters and numerals will be included in the signs, and 40,000 feet of reflectorized border will be used. The signs are of extruded aluminum.

NHMA July Exhibit Largest in History

A new high of 4,909 buying firms sent 8,121 buyers to The National Housewares Manufacturers Association's 29th National Housewares Exhibit, held in July at Atlantic City, N. J., according to Dolph Zapfel, secretary of the association. The 8,121 buyer registration, and a total of 660 exhibitors, set new records to make the show the largest summer exhibit in housewares history, with total attendance reaching 21,121.

Pyle-National Acquires Steber

Pyle-National Co., Chicago, a pioneer manufacturer of electrical connectors, fittings, and lighting equipment, has contracted to acquire the Steber Mfg. Co., Broadview, Ill., a major producer of outdoor lighting fixtures and lighting equipment, it has been jointly announced by William C. Croft, president of Pyle-National, and Clarence L. Steber.

Croft reported that the Steber firm would continue its operations as a division of the Pyle-National organization. Steber's headquarters plant in Broadview, a Chicago suburb, its West Coast manufacturing plant in Los Angeles, and its Canadian operation in Toronto, Steber-Woodhouse, Ltd., are all involved in the acquisition.

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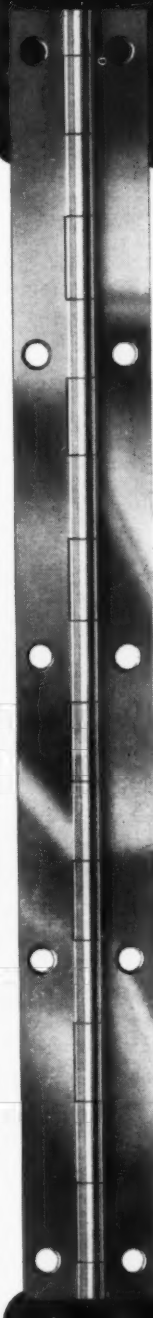
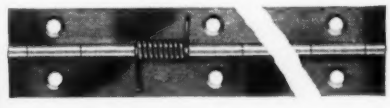


for all types of appliances, cabinets and other metal applications

EQUAL WINGS — STAGGERED HOLES

UNEQUAL WINGS — PARALLEL HOLES (ON SPECIAL ORDER)



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Rockford, Illinois

INDUSTRY PERSONALS

Frank Coyle has been appointed national refrigerator sales manager for the Norge Div. of Borg-Warner Corp., Chicago, Harold P. Bull, vice president of sales has announced. Coyle will direct the marketing of Norge refrigerators through 87 distributors nationally.

With Norge since March, 1955, Coyle has been manager of the contract sales division in charge of sales to builders, mobile homes, and government agencies, a position he will still hold.

The Sunray Stove Co. has announced the appointment of **Carl J. Vollmer,** Houston, Texas, as district sales manager for that area. He will be in charge of all sales to distributors and dealers in the Houston, San Antonio, Austin, Corpus Christi, Bryan, Galveston, Beaumont, and Port Arthur areas, in addition to the warehouse operation in Houston.

Appointment of **Robert W. Criqui** as production manager for Republic Steel Corporation's Berger Div., Canton, Ohio, was announced recently by Frank Peterson, Berger Div. manager.

New field sales manager of RCA Whirlpool home appliances is **Thomas F. Bartley,** former range sales manager and a Whirlpool employee since June, 1953.

He will assist John Crouse, general sales manager, in the coordination and supervision of regional and district managers, and counsel to wholesale distributors.

Named to succeed Bartley as range sales manager is **Gerald L. Hartman,** former gas range product manager. In his new position, he will be responsible for sales of all RCA Whirlpool gas and electric ranges.

BARTLEY

HARTMAN

Herbert L. Gressens has been promoted to sales manager of the electric utility division of Whirlpool Corp., it was announced recently by Dwight Anneaux, general manager of the division.

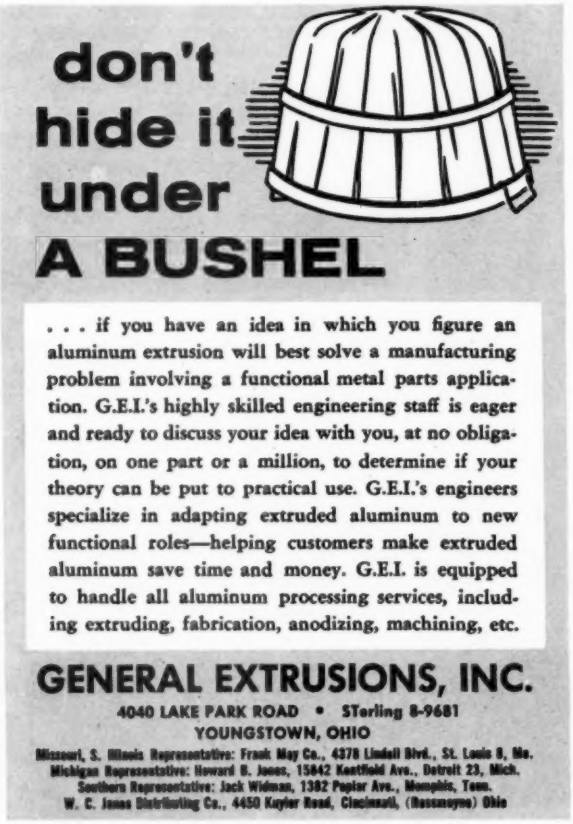
Phil H. Weil has been appointed manager of national account sales for the Norge Div. of Borg-Warner Corp., Chicago. He will direct marketing of Norge home appliances through major retail stores.

Charles Bergman and **Lawrence Jordan** have joined the Maytag company as design engineers in the appliance firm's research and development division.

Robert B. Smith, formerly coordinator of research for the Columbia Gas System Service Corp., has been named assistant director of research for the American Gas Association. The appointment was announced by C. S. Stackpole, AGA managing director.

The promotion of **James Ruff** to director of sales planning has been announced by the Norge Div. of Borg-Warner Corp., Chicago. He will direct the activity of marketing personnel and Norge home appliances product managers, said Harold P. Bull, vice president of sales. Formerly director of marketing research, he will now coordinate product development and marketing.

Ruff has been with Norge since 1954.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. . . if you have an idea in which you figure an aluminum extrusion will best solve a manufacturing problem involving a functional metal parts application. G.E.I.'s highly skilled engineering staff is eager and ready to discuss your idea with you, at no obligation, on one part or a million, to determine if your theory can be put to practical use. G.E.I.'s engineers specialize in adapting extruded aluminum to new functional roles—helping customers make extruded aluminum save time and money. G.E.I. is equipped to handle all aluminum processing services, including extruding, fabrication, anodizing, machining, etc.
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Missouri, S. Illinois Representative: Frank May Co., 4378 Lindell Blvd., St. Louis 8, Mo.
Michigan Representative: Howard B. Jones, 15842 Kentfield Ave., Detroit 23, Mich.
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NEWS about Suppliers

J&L West Coast Office

Jones & Laughlin Steel Corp. has established a new location for its Los Angeles district sales office, it has been announced by R. G. Shearer, district sales manager. The new office is located at 2131 S. Garfield Ave., Los Angeles 22, Calif. The new telephone number will be RAymond 3-9951. The office formerly was located at 4727 E. 48th St., Los Angeles.

New Pennsalt Canadian Plant Dedicated

Dedication of a chemical specialties plant in Canada by Pennsalt Chemicals of Canada Ltd. took place recently at Oakville, Ontario.

William P. Drake, president of the parent company, addressed dedication ceremonies preceding an open house tour. Other key Pennsalt executives who attended the Oakville plant ceremonies were: Albert H. Clem, general manager of the chemical specialties division; W. Cooper Willits, treasurer of the parent firm; and William B. Billingsley, vice president and resident manager of Pennsalt Chemicals of Canada Ltd.

The new Oakville plant manufactures metal cleaners, phosphatizing chemicals, and drawing compounds for the metal fabricating industry.

Among dignitaries participating in dedication ceremonies of new plant in Oakville, Ontario, Canada are (from left): Rev. J. A. Terry, St. John's United Church of Canada, Oakville; Stanley Hall, provincial member of Parliament; William P. Drake, president, Pennsalt Chemicals Corp.; William B. Billingsley, vice president and resident manager, Pennsalt Chemicals of Canada Ltd.; C. Alexander Best, federal member of Parliament; and Albert H. Clem, general manager, Chemical Specialties Div., Pennsalt Chemicals Corp.

New Carborundum Plant

The Carborundum Company's board of directors recently authorized new plant facilities in Niagara Falls, N. Y., estimated to cost approximately $6,000,000, according to an announcement by General Clinton F. Robinson, company president. Construction of the new facilities for the manufacture of 4" to 14" grinding wheels will start within the next 30 days.

The new plant will incorporate the results of over 2 years of engineering development, it is stated.

Pyramid Mouldings at the IAM Meeting

This MPM *photo, taken at the last Institute of Appliance Manufacturers meeting in Cincinnati, shows members of the organization of Pyramid Mouldings, 5353 W. Armstrong Ave., Chicago. They are, left to right, W. J. Walkoe, president, Robert Williams, Louisville office, William Newkirk, Cincinnati office, Frank Estrella, vice president, and C. M. Wiedemann, Cincinnati office. Estrella and Wiedemann are wearing appropriate neckwear, following their installation as "Kentucky Colonels."*

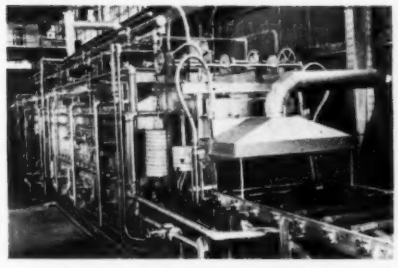
Reynolds Metals Sales and Earnings Up Over '57

Reynolds Metals Co. sales and earnings were higher in the first half of 1958 than in the same 1957 period, according to Richard S. Reynolds, Jr., president of the Richmond, Va. firm.

Consolidated net profit for the first six months of 1958 amounted to $19,210,266, or $1.67 a share, compared with $18,546,817, or $1.61 a share, in the first half of 1957.

Although six months results reflect substantial sales to government agencies, Reynolds stated, the company has noted a continuing improvement in commercial sales.

New Furnace in Operation at Republic Steel



A new continuous-type six-zone prepared atmosphere furnace, capable of producing 1,000 tons of "carbon corrected" annealed steel per month, has been placed in operation at Republic Steel's Union Drawn division, Massillon, Ohio.

Made to specifications drawn by Union Drawn's chief metallurgist, J. D. Armour, the furnace permits carbon lost by decarburization during previous hot working operations to be restored to the surface of the bars. The furnace is so designed that any type annealing cycle can be carried out. Each of its six zones can be maintained independently at the desired temperature.

Armco Growth Necessitates Changes

R. L. Gray, president of Armco Steel Corp., Middletown, Ohio, announced a number of changes in organization, effective August 1, made necessary by the growth of the company and recent mergers with The National Supply Co. and Union Wire Rope Corp.

"Armco Steel Corp. is now composed of two steel divisions and four major subsidiaries, each operating as a self-contained unit insofar as possible. The resulting increased responsibilities which have been placed upon the general staff executives make it necessary to realign functions, create additional offices, and bring executives from these units into central headquarters at Middletown, Ohio," Gray said.

Allied Research to Distribute Cowles Cleaners

J. A. Cairns, vice president-sales, Allied Research Products, Inc., has announced that negotiations have been completed for the company to represent Cowles Chemical Co. on its complete line of cleaners for metal finishing.

Effective immediately, Allied Research says it will provide sales representation and service from coast to coast on the above products.

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METAL PRODUCTS STATISTICS

a current report on available production, shipment and sales figures for important products in the appliance and fabricated metal products manufacturing field

		1958 (Units)	1957 (Units)	% Change
Gas Water Heaters	June	228,100	211,700	+ 7.7
	Jan.-June	1,332,800	1,333,000	- 0.0
Gas Ranges, Built-In	June	23,600	19,300	+22.3
	Jan.-June	98,900	92,400	+ 7.0
Gas Ranges, Free-Standing	June	128,400	136,000	- 5.6
	Jan.-June	761,000	878,000	-13.4
Gas Furnaces	June	70,700	55,400	+27.6
	Jan.-June	319,800	294,900	+ 8.4
Gas Fired Boilers	June	9,300	8,500	+ 9.4
	Jan.-June	40,500	39,300	+ 3.1
Gas Conversion Burners	June	11,000	10,500	+ 4.8
	Jan.-June	50,000	50,500	- 1.0
Electric Refrigerators	June	316,300	305,000	+ 3.7
	Jan.-June	1,485,000	1,803,800	-17.7
Electric Freezers	June	121,500	94,800	+28.3
	Jan.-June	493,600	471,200	+ 4.9
Electric Ranges, Free Standing	June	63,800	65,900	- 3.2
	Jan.-June	400,000	500,500	-20.1
Electric Ranges, Built-In	June	53,000	36,400	+45.6
	Jan.-June	244,000	214,200	+12.1
Electric Storage Water Heaters	June	74,600	70,500	+ 5.8
	Jan.-June	397,500	392,700	+ 1.2
Electric Dishwashers	June	34,300	33,500	+ 2.4
	Jan.-June	184,100	191,300	- 3.8
Electric Food Waste Disposers	June	61,300	44,700	+37.2
	Jan.-June	282,700	256,200	+10.4
Combination Washer-Dryer	June	7,069	9,019	-22.0
	Jan.-June	64,851	91,970	-29.0
Washers, Automatic & Semi	June	209,689	208,721	+ 0.5
	Jan.-June	1,180,017	1,310,763	-10.0
Washers, Wringers & Others	June	79,142	397,576	- 2.0
	Jan.-June	397,576	446,988	-11.0
Electric Dryers	June	34,913	33,161	+ 5.0
	Jan.-June	271,776	328,462	-17.0
Gas Dryers	June	19,260	14,535	+33.0
	Jan.-June	114,769	143,484	-20.0
Vacuum Cleaners	June	253,127	207,286	+22.0
Metal Furniture	June	N. A.	N. A.	+ 1.0
	Jan.-June	N. A.	N. A.	- 5.0
Television	May	210,197	333,921	-37.0
	Jan.-May	1,780,476	2,121,267	-15.7
*Radio	Jan.-May	2,198,909	2,670,709	-15.7
Compressor Bodies	Feb.	328,760	N. A.	-25.0
	Jan.-Feb.	856,504	N. A.	-15.0
Steel Barrels & Drums	May	2,731,876	3,209,498	-14.0
	Jan.-May	12,762,252	15,506,606	-19.0
Steel Pails	May	6,882,328	7,068,313	-28.0
	Jan.-May	28,457,979	31,309,551	- 9.5
Typewriters	June	85,454	496,279	N. A.

***No longer reporting on monthly basis.**

Sources for this information: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, American Home Laundry Manufacturers Association, Vacuum Cleaner Manufacturers Association, National Association of Furniture Manufacturers, Electronic Industries Association, and Air-Conditioning and Refrigeration Institute, U.S. Dept. of Commerce.

Presstime News

→ *from Page 81*

development and new applications program by PEI's Frit-on-Steel Division.

Pierce was formerly a technical representative with Zenith Plastics Co., a 3M subsidiary.

Before joining Zenith in 1956, Pierce was with Owens-Corning Fiberglas Corp. for 10 years, where he was responsible for developing new uses, and marketing many types, of fiberglas products.

The basic function of the product engineer will be to develop new or increased uses for porcelain enamel on steel, and to obtain the cooperation of companies with poreclain enameling facilities, steel manufacturers, frit companies, and others in the development of new applications, the announcement states. The program will be coordinated by a committee of PEI's Frit-on-Steel Division consisting of: A. S. Ault; vice president and general manager, Chicago Vitreous Corp.; M. J. Keedy, vice president, sales, Ingram-Richardson, Inc.; E. M. Hommel, president, The O. Hommel Co.; Herbert Turk, president, Pemco Corp.; and W. N. Noble, vice president, Ferro Corp.

New Chemical Coating

A completely-new chemical coating is being introduced to the users of industrial finishes. It is engineered for the manufacturer whose product requires protection from wear, abrasion, peeling, corrosion, and exterior exposure. All these desirable properties are claimed for the new coating which is available in practically any color.

For complete information and liquid samples of Egyptian S-200 for test application to your own product, write Dept. MPM, The Egyptian Lacquer Mfg. Co., P. O. Box 444, Newark 1, N. J.

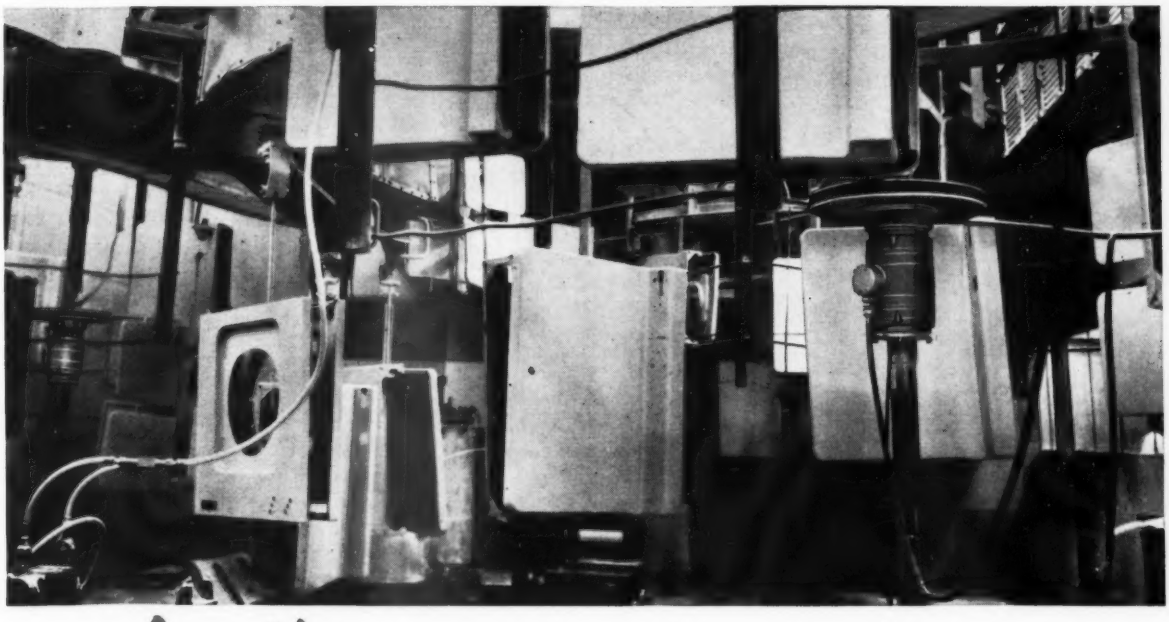
Special purpose stainless steels

New 32-page booklet gives detailed information on special purpose stainless steel sheet and strip grades. Describes physical properties and analyses, corrosion and heat resistance, surface finishes, fabrication, maintenance, and bacteria cleanability.

The booklet includes extensive laboratory corrosion resistance data, and a stainless steel selector chart.

A free copy will be procured for you if you write on your company letterhead to Readers Service Dept., METAL PRODUCTS MANUFACTURING, York St. at Park Ave., Elmhurst, Ill.

porcelain enamel coating by *Electrostatic process*



Another ING-RICH *first...*
and we carry on!

The frit which made possible the first commercially successful use of electrostatic spraying was produced by Ing-Rich ceramic engineers and technicians.

Because we were again "*out ahead of the field*" and because of continuous research and test from that day to the present, we are placed in the highly advantageous position of being able to intelligently advise with you on the advantages and limitations of electrostatic coating.

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Supplier News

→ *from Page 89*

Ferro Service Cited

Ferro Corp. was notified on July twenty-third that it was named "Vendor of the Month" by the Clyde Div. of Whirlpool Corp., Clyde, Ohio, for its service to that company during the month of June.

The Whirlpool program for recognition of superior vendor performance rates suppliers on quality, service, integrity, pricing, packaging, and supplier suggestions for Whirlpool product improvement. Ferro has supplied the firm with frit, ceramic colors, enameling furnaces, and enameling production information.

Aluminum Reduction Plant on Schedule

The second of five reduction pot lines at the Ormet Corp. aluminum reduction plant started routine production on schedule, James W. Hutchison, vice president, announced recently. Full scale operation at the $110,000,000 facility is scheduled for the end of the year.

Start up of the second pot line brings the facility's daily output to approximately 200 tons of metal, double the output of the first line. The plant's first line was placed in operation last May.

Of the 180,000 tons of primary aluminum to be produced annually by Ormet, Olin Mathieson will receive 120,000 and Revere 60,000. Ormet's other production facility, a 345,000-ton a year alumina plant at Burnside, La., started initial production last June.

Plug-Type Valve for Ranges

Clifford Fry, chief engineer, and O. M. Cummins, president, Certified Gas Equipment Corp., Mansfield, Ohio, scrutinize a new plug-type valve which the company introduced recently. According to Cummins, "This valve, with non-displaceable rotor, should find a ready market where an economy plug-type valve is used. It is available in either locking or non-locking styles."

Chemical Processing Moves to Larger Quarters

Chemical Processing, Inc., has moved to larger plant facilities, and is now located at 5485 Concord, Detroit 11, Mich. Their telephone number is WAlnut 5-3400.

Allied Research Announces New Officers

Allied Research Products, Inc., has announced the following officers and directors as a result of the merger of Wagner Brothers and Allied Research, which occurred May 1, 1958. Officers are H. C. Irvin, president; Jules Horelick, vice president; Philip G. Richey, vice president and treasurer; J. A. Cairns, vice president; F. M. Mansfield, vice president; Harry C. Quast, secretary; and Joseph W. Agerson, assistant secretary. Directors are: H. C. Irvin, chairman; Joseph R. Wagner, Philip G. Richey, J. A. Cairns, John C. Corkrin, Harry C. Quast, Charles W. Ostrander, and Jules Horelick.

The operational structure includes Joseph R. Wagner as administrative assistant to Irvin and Bruno Leonelli as technical assistant. Cairns is vice

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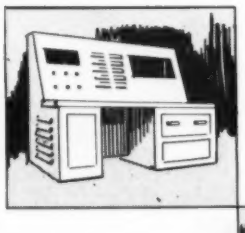
custom-built metal units for industry



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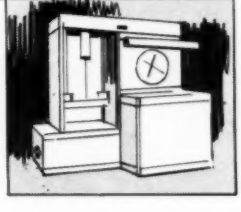

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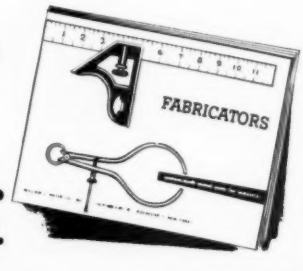

New Literature

→ *from Page 82*

company is equipped to handle all aluminum processing services, including extruding, fabrication, anodizing, machining, etc. Their engineers specialize in adapting extruded aluminum to new functional roles, helping customers make extruded aluminum save time and money. For more information, contact Dept. MPM, General Extrusions, Inc., 4040 Lake Park Road, Youngstown, Ohio.

Tempered Glass Windows

A free catalog is available which completely describes how tempered glass windows enable the manufacturer to take advantage of lower piece price, immediate delivery, and elimination of glass mold charges. For the free booklet entitled, "Glass fabricated parts for industry," write Dept. MPM, Chicago Dial Co., LaSalle at 29th St., Chicago 16, Ill.

Infra-Red Oven Sections

A booklet on infra-red oven sections is available, giving a complete description of how these sections can be assembled to meet batch type requirements for baking, drying, and product heating. These sections are mounted in contoured combinations for continuous conveyor-line applications, or purchased as complete portable ovens. Copies of this folder, Form 4999, include descriptive literature, outline and mounting dimensions, detailed application data and prices. Contact Dept. MPM, Lighting Division of Safety Industries, Inc., P. O. Box 70, Milford, Conn.

Complete Screw Stock List

An 18-page booklet is available from one of the leading manufacturers of screws on the various types of screws available for a wide variety of uses. Machine screws of all types, in steel, brass, aluminum, and stainless, are completely described. Also listed are tapping screws, of all types and in all available materials. A complete list of various diameters and lengths of available screws is tabulated. For the stock list, write Dept. MPM, Southern Screw Co., P. O. Box 1360, Statesville, N. Carolina.

Aesthetic Functionalism With Perforated Metals

The perception of the industrial designer and other men of ideas, and the selection and adaptation of aesthetically interesting and functionally honest mediums is constantly proving the versatility of perforated metals, according to the manufacturer. For more than 75 years, this company has helped to broaden the horizons of industrial design through the imaginative creation of unlimited patterns in both metallic and non-metallic materials, it is said. Appropriate designs can be selected from thousands of existing dies at no charge for tooling. Write Dept. MPM, The Harrington & King Perforating Co., Inc., 5640 Fillmore St., Chicago 44, Ill.

Custom-Built Metal Units For Industry

A folder is available describing a wide variety of custom-built metal units, including all types of panels, belt or gear guards, brackets, gear cabinets, and stainless steel tanks and equipment for photographic and reproducing industries. According to the manufacturer, they now have adjustable perforating dies which will assure precision fabricating for large or small jobs. For information, write Dept. MPM, Wm. J. Meyer Co., Inc., 1236 Plymouth Ave., S., Rochester 7, N. Y.

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BLOWER HOUSINGS

NEW

SUPPLIES & EQUIPMENT

Improved Steel Cleaner

After extensive field testing, a new, improved steel cleaner has been introduced. Called Northwest Acid Activating Salt #1, (AAS #1), the product is said to be dustless, granular, and free flowing. Non-returnable, lined kegs simplify handling. It is said to be practically odorless, and will not harden in the container. It can be used in conventional acid pickling operations, and also serves as an excellent chrome stripping bath at 200° F.

For further information, contact Dept. MPM, Northwest Chemical Co., 9310 Roselawn, Detroit 4, Mich.

Wet Film Thickness Gauge

A Wet Film Thickness Gauge, designated WFG-100, has been introduced. The gauge is said to be capable of measuring wet film ranging from ½ to 20 mils of all paints, coating oils, adhesives, plastics, and other finishing materials.

Simple to use, the only moving part, a hardened precision-ground face plate, is rotated to adjust to the estimated wet film thickness. With two easy motions, an accurate measurement can be quickly obtained, it is said.

For further information, contact Dept. MPM, Nordson Corp., Subsidiary U. S. Automatic Corp., Amherst, Ohio.

Snap-Acting Switch

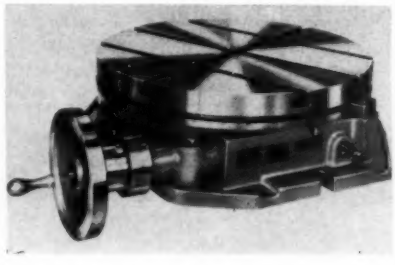
A snap-acting switch, known as Type A, is furnished with a hinged-lever actuator, as well as with button, overtravel plunger, leaf and leaf-roller actuators for use in automatic devices such as washer-dryer units, vending machines, and many other control devices. Standard or special-design auxiliary actuators are also furnished.

For further information, contact Dept. MPM, Unimax Switch Div., The W. L. Maxson Corp., Wallingford, Conn.

Redesigned Rotary Table

A line of redesigned rotary tables has been introduced which is said to permit greater accuracy for performing a variety of operations such as cutting segments of circles and circular slots, milling clutch teeth, locating angularly-spaced holes or slots, cutting irregular contours, etc. Some of the features are larger diameter, easy-to-read dials which are said to be accurately graduated in one minute increments; one-piece worm shafts; enclosed base to prevent chips, dust or dirt from entering; and precision-ground turntables, etc.

For further information, contact Dept. MPM, Troyke Mfg. Co., Cincinnati 41, Ohio.



Modular Connectors

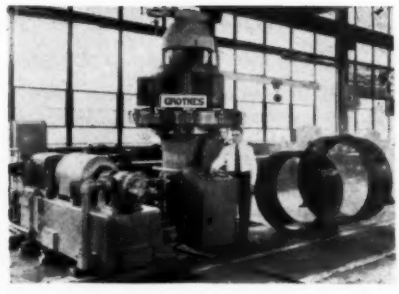
A line of modular connectors, known as Uno-Link, have been introduced. Multiple unit construction permits the designer to specify the exact number of connecting links desired with resultant economies in space and cost. The mating in-line arrangement of plug pins and socket contacts utilize nesting insulator segments which are combined in any numbers from two to thirty modules.

For further information, contact Dept. MPM, Methode Mfg. Corp., 7447 W. Wilson Ave., Chicago 31, Ill.

Ultrasonic Cleaning Unit

An ultrasonic cleaning unit, called Econo-sonic, is said to be a complete solvent degreasing unit within itself. It has boil and rinse chambers, plus complete circulation and filtration. Added is a spray lance to make it more functional.

For further information, contact Dept. MPM, Detrex Chemical Industries, Inc., P. O. Box 501, Detroit 32, Mich.



Metal Expander

A metalworking machine that develops more than 1580 tons of force, and stretches a steel ring weighing over one and one-half tons, has been introduced. The machine has expanded a part 60″ in diameter, 26″ in height, and with a 2″ thick wall, and sized it to within plus or minus .010″ of a true circle. The entire operation, taking only a minute, is performed cold with no heating of the part, the power being so great that the metal flows cold to the desired size and diameter.

For further information, contact Dept. MPM, Grotnes Machine Works, Inc., 5454 N. Wolcott Ave., Chicago 40, Ill.

Range Timers

The 5810 Series combination fully-automatic range timer and 1-hour electric minute minder, and the 6010 Series combination electric clock and 4-hour minute minder, are said to combine the latest in engineering design, and are equipped with an improved synchronous lube-less motor. Some features are one-knob "cook-now" timing, separate minute minder top-side control, and 3-dimensional styling.

For further information, contact Dept. MPM, The Lux Clock Mfg. Co., Inc., 95 Johnson St., Waterbury 20, Conn.

Conical Blender

A large conical blender has been built and placed in service. The unit, a 17′ 6″ diameter machine, called the Thoro-Blender, cross-blends polyethylene in 30-ton batches. Complete homogenity is said to be obtained in approximately one-half hour. All surfaces contacting the material are of stainless steel. Operating speed is 8 rpm. The unit is used for processing a broad range of chemicals, plastics, dyes, metal powders, foods, and other dry free-flowing materials. It is available in production models as small as 2′ in diameter, and in laboratory sizes.

For further information, contact Dept. MPM, The Patterson Foundry and Machine Co., East Liverpool, Ohio.

TITANOX* will brighten her life... when her hour to scour arrives. Thanks to the tough coating of titania porcelain enamel, based on TITANOX-TG titanium dioxide, her lovely new stove will clean up in a jiffy to reveal its original bright finish. And this finish is neither thick and heavy nor easily chipped. For the extreme opacity imparted by TITANOX-TG permits a film-thin coating that will withstand any experiment in cookery.

Because they are made exclusively for porcelain enamels, TITANOX-TG and TITANOX-TG-400 (the latter for blue-whites) are No. 1 choice in titanium dioxide for such finishes . . . not only for ranges, but for any fabricated metal product. These titanium dioxides provide easy working qualities—easy handling, storing and blending—and controlled uniformity of composition. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities.

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*TITANOX is a registered trademark for the full line of titanium pigments offered by Titanium Pigment Corporation.

6102

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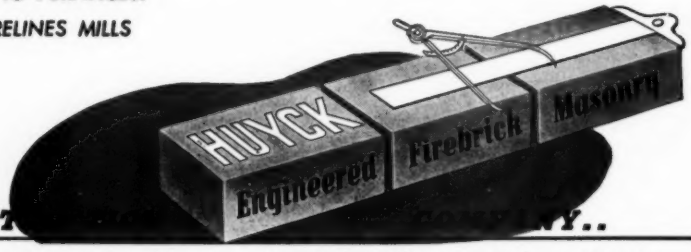

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Consumer appeal, functional beauty, and economy are part of your designs with Standard's Perforated Metals. Standard's complete selection of perforated patterns and custom pattern design service add the qualities that count at the point of sale! Specify perforated metal by Standard.

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GENUINE PORCELAIN ENAMELING ON ALUMINUM AND ALUMINIZED STEEL

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safe transit

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York Street at Park Avenue
Elmhurst, Illinois

editorial voice of the national safe transit program

devoted to improving packaging methods and shipping and materials handling methods for the appliance and metal products manufacturing industries. This section contains plant experience information and industry advances for the use of all executives and plant men interested in improving packaging and shipping methods and in loss prevention. The section contains complete information on the national safe transit pre-shipment testing program for packaged finished products and detailed reports of divisions and sub-committees of the National Safe Transit Committee.

Chicago to be Host for Packaging Show

By proclamation of Chicago's Mayor Richard J. Daley, the week of October 12 has been formally designated "Packaging, Handling, and Shipping Week" in Chicago. During that week, the SIPMHE-sponsored annual triple-feature event of the packaging, materials handling, and shipping world will be held in Chicago; the 13th Annual Packaging, Handling, and Shipping Show, the yearly Technical Short Course, and the annual National Protective Packaging and Materials Handling Competition.

The show and competition will be held at the Chicago Coliseum October 14-16, while the short course will be at the Chicago Y. M. C. A. hotel October 13-15.

In addition, the Packaging Institute of New York will hold its annual Forum at the Edgewater Beach hotel October 13-15, and will join SIPMHE in a special joint program at the Coliseum the afternoon of October 15. The Packaging and Handling committee of the Air Craft Industries Association will meet October 15-16 at the Bismark hotel.

NWBA Offers Revised Industrial Box Specification

The National Wooden Box Association announces the availability of the revised specification for Nailed Wooden and Lock Corner Boxes for Industrial Use, NWBA Specification I-1B of May, 1958. To meet demands from industry for a national standard, the original specification, I-1A, issued in May, 1956, received wide distribution and usage.

Changes in the revised specification, determined by the industry's Specification committee, reflect current requirements and practices for both box users and manufacturers. Industrial wooden box users, particularly those holding copies of Specification I-1A, are urged to obtain copies of the revision. Copies can be obtained from your box manufacturer, or by contacting the National Wooden Box Association, Barr Building, Washington 6, D. C.

Carriers Accept "Three-Point Program"

Over 4,000 copies of NSTC's new "Three-Point Program" for claim prevention have been ordered by carrier associations.

Three specific ways are stressed by which the carrier may utilize the NSTC program to aid a customer who is experiencing repeated damage to his products in transit.

In addition, the role of the laboratory as an aid to carrier-manufacturer cooperation is clearly outlined.

Proclaiming the theme "Team Up — For Safe Transit," the new program is meeting enthusiastic acceptance.

Far East Views NST Film

The National Safe Transit program, as described by the full color sound film "A Blindfold Removed," is being viewed by Japanese industry as plans for introducing the preshipment testing program into Japan are being investigated.

Purchase of the film was arranged for through the Railway Express Agency by members of a team of Japanese Packaging Specialists who visited the United States in June of this year.

"A Blindfold Removed" and two other NST films are available for rent or purchase to those manufacturers, laboratories, or carriers who wish to supplement their sales presentations.

Atlanta Group Meets NST

A presentation of the National Safe Transit Committee program was made at a meeting of the Packaging and Materials Handling Sub-committee of the Air Traffic Conference in Atlanta, Georgia, on July 28, 1958, by Ralph R. Theile, director of cargo traffic, Air Transport Association of America.

NSTC literature and the 15-minute film, "A Blindfold Removed," were used to illustrate the program.

Aiding in the presentation was John E. Hillgoth, assistant director, cargo traffic, Air Transport Association of America.

Japanese Industry Studies NST

A month of intensive study of U.S. packaging and transportation methods and techniques by a team of Japanese industrialists was climaxed on June 30, 1958 by a presentation of the National Safe Transit program in Washington.

The tour, arranged for through the International Cooperation Administration, and managed by A. E. Laurencelle of the Office of Industrial Resources, I.C.A., covered visits to container manufacturers, laboratories, and other segments of U.S. industry.

Among those visited were the Lewis & Howe Co., St. Louis, Mo.; Ford Motor Co., Dearborn, Mich.; E. I. duPont de

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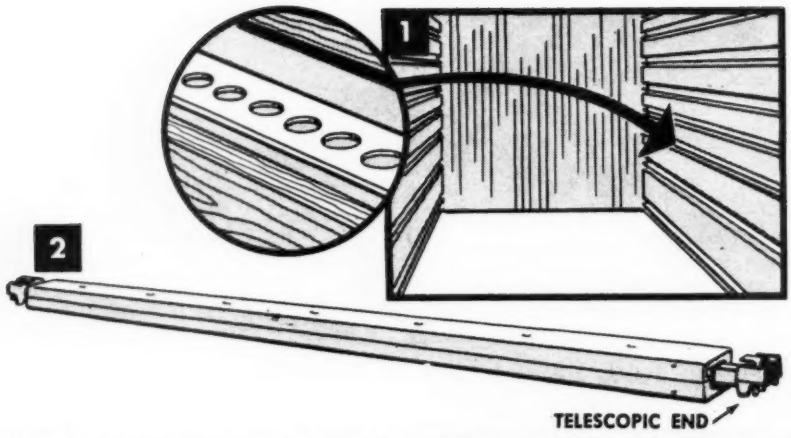
Dunnage free
the shipment of
other fabricated

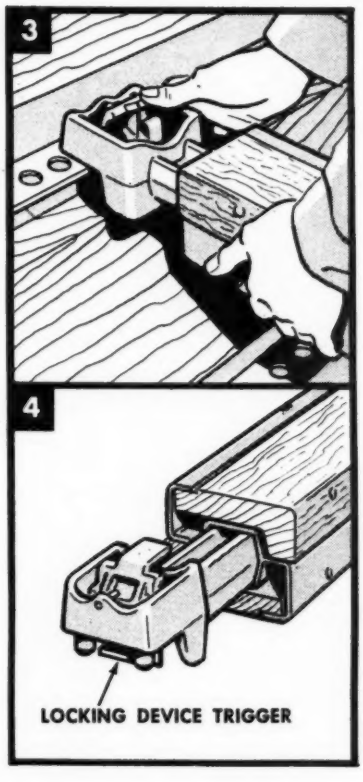


Belt rails—*(Fig. 1) Perforated wall angles permit locating and locking cross members with 1-inch adjustment for the entire length of the car.*

Cross members — *(Fig. 2, 3 & 4) These are bars with a locking device at each end which have two lugs which drop in the holes in belt rails and lock securely. Slight thumb pressure under the locking device releases the bars for removal. One end of each cross member telescopes to compensate for wall spread in the car.*

Doorway members — *(Top right, opposite page) These members consist of reinforced belt rail sections to fit across car doors. This permits full length-of-car loads.*

Deck boards — *(Below) These are platforms used for making more than one deck, and are also used as* **bulkheads** *when used to brace the end of a load.*



Loading first section — This illustration shows the use of bulkheads and cross members to brace the first section of a car load. The bulkhead is placed with the smooth surface against the lading. The first cross member is then located against the bulkhead at or just below the level of the top lading; locking pins at the non-telescoping end of the cross member are lined up over holes in the belt rail and pressed into locked position. The telescoping end is then placed over the holes in the opposite belt rail and locked in position. This same procedure is used on the required number of cross members to meet the load weight specification.

HAVE YOU TRIED the dunnage free cars for shipping your finished products? A number of the leading railroads have made this equipment available in limited quantities, but it would seem that if the cars are to come into more general use, it will depend upon the shippers to determine their usefulness for their particular products and then encourage the railroads to make more of the equipment available.

The specially-equipped cars are furnished by the railroad, complete with all requirements to eliminate dunnage furnished by the shipper. The cars are equipped with 8 or more belt rails, permanently installed on both walls of the car, plus enough cross members, doorway members and deck boards to brace all normal loads.

Some of the obvious advantages of this carloading method are elimination of special dunnage, practicability of loading the entire car where weight permits (including space between door openings), elimination of much manual labor associated with ordinary dunnage through the use of special built-in attachments. An advantage that should be important to full line appliance manufacturers is the fact that mixed cars can be used as safely as solid cars of a single product.

Advance load planning helps

In using the special cars, loads should be planned in advance to see how much equipment will be required. A complete load should be divided into sections, with the bulkhead and two or more cross members figured to brace each section. Determination of the cross member requirements is simple; each one is designed to safely brace 4,000 lbs. of load against lengthwise shifting and is designed for carrying 1,200-pound loads for double decking.

In using the system, the special car arrives at the dock for loading, with the equipment required stored in one end of the car. The standard procedure is to load the other end of the car first to use one half of the loader equipment, and

ree cars for
t of appliances and
ted metal products

then to store the equipment for loading the second half on the dock for completing the load.

The belt rails consist of perforated wall angles, permanently installed in the cars, to permit the locating and locking of cross members which afford a one-inch adjustment for the entire length of the car (cross members are designed so that by turning them this adjustment can be cut down to one-half inch).

Provision for car "spread"

The cross members consist of bars with a locking device at each end. Each locking device has two lugs which drop into the holes in the belt rails to lock securely. Cross members may be released by thumb pressure on the locking device. One end of the cross member telescopes slightly to compensate for wall spread in the car.

Doorway members consist of reinforced belt rail sections which fit across the doors to permit full length of car loads.

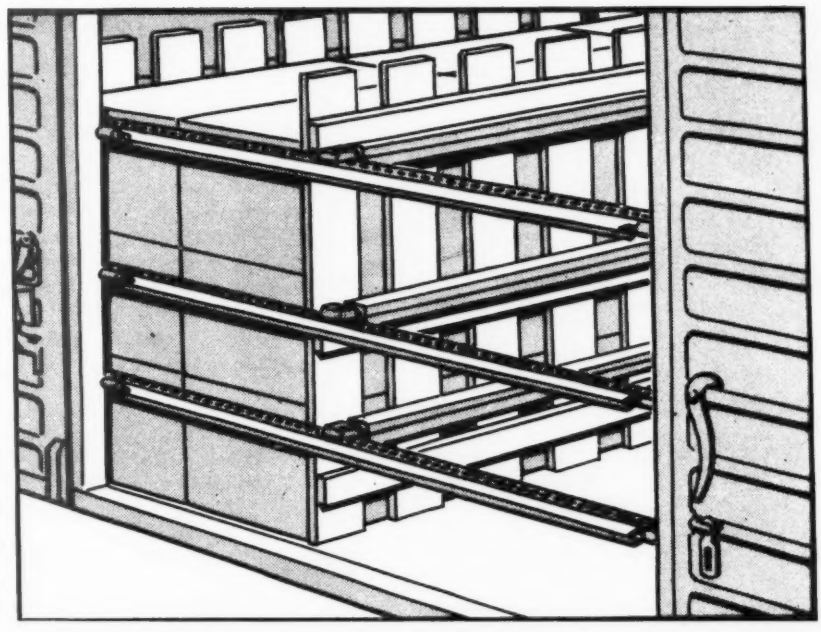
Deck boards are platforms used for making multiple deck loads. These deck boards are also sometimes used as bulkheads for bracing the end of a load.

Loading sequence

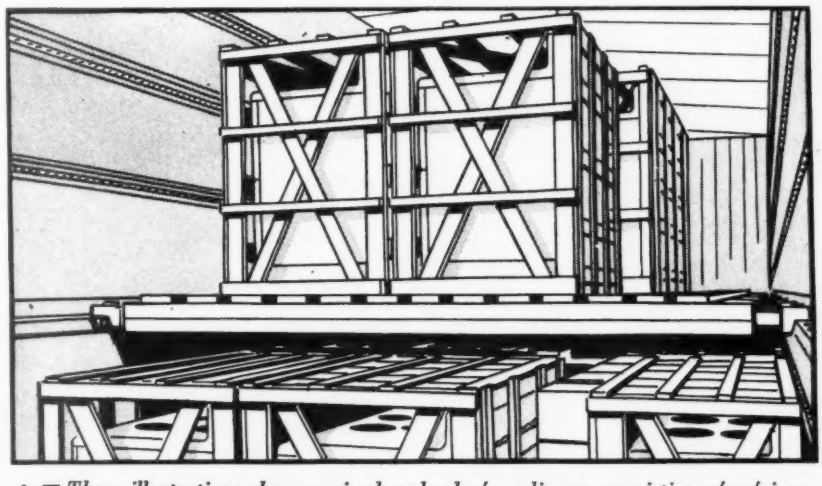
If you have planned to use the full length of the car, the doorway members are put in place across the door opposite the one through which the load will enter. Then the loading is carried out in the standard manner except that the first end loaded will project two or three feet into the door area. The accompanying sketches show the standard equipment included in the dunnage free cars and a typical mixed car load, including ranges, refrigerators, and washers.

(Other types of special cars and loading equipment will be covered in later issues.)

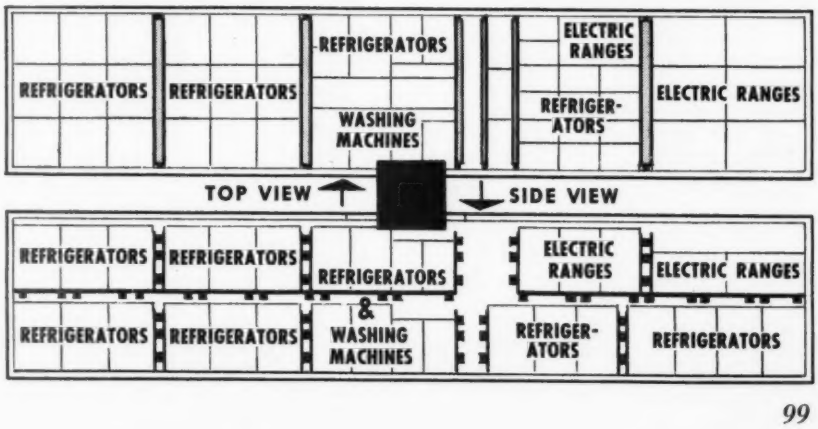
For additional information covering the dunnage free car equipment and typical loading suggestions for a wide variety of products, write on your company letterhead for free booklet to Special Project Editor, METAL PRODUCTS MANUFACTURING, York St. at Park Ave., Elmhurst, Ill.



Loading the door space is easily accomplished with the special car equipment. Doorway members are placed across the door opposite the one through which the products are to be loaded. This illustration shows a car half loaded.



These illustrations show a mixed carload of appliances consisting of refrigerators, washing machines, and ranges. It is indicated that a typical car has delivered 83 refrigerators, eight washing machines, and seven ranges. The manufacturer of the special equipment states that other appliances such as hot water heaters, radios, freezers, and TV sets have been handled with equal success.



Supplier News

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president in charge of sales, Mansfield vice president in charge of marketing, Richey vice president in charge of finance, and Horelick vice president in charge of development.

Irvin stated that all metal finishing operational assets and products of Wagner Brothers have been acquired by Allied Research. Wagner Brothers, Inc., will continue to exist as an entity, but will neither manufacture nor market any product for the metal finishing industry.

New Subsidiary Formed by DeVilbiss

Additional facilities to provide complete finishing systems to industry are now offered by The DeVilbiss Co. through a new wholly-owned subsidiary, DeVilbiss Metal Fabricators Co., Detroit.

Howard P. DeVilbiss, president of the parent company, announced that the new firm is the result of the consolidation of the Peters-Dalton Div. of Detroit Harvester Co. and Newcomb-DeVilbiss Co. Both are engaged in the manufacture of industrial ovens, heavy-duty waterwash spray booths, parts washers, etc.

New Kaiser Steel Houston Office Opened

The opening of a Kaiser Steel Corp. sales office in Houston, Texas has been announced by C. L. Emerson, general sales manager. The new office, located in the Esperson Building in downtown Houston, will be headed by Robert E. Brown, who has been with Kaiser Steel's sales department for six years, and who was located at the Tulsa office before being named sales representative in Houston.

Caine Steel Co. Becomes Fairmont Aluminum Distributor

Fairmont Aluminum Co., producer of aluminum sheet, coil, and circles, has concluded an agreement with Caine Steel Co., St. Louis, Mo., whereby the latter firm will act as sole distributor of Fairmont products in Missouri, Kansas, Oklahoma, Texas, and southern Illinois.

W. Bradley Blair, Fairmont vice president in charge of sales, said that Caine Steel will maintain a complete stock of Fairmont products at its St. Louis, Mo. warehouse for immediate shipment to aluminum users throughout its service area.

Ampere Process Division Formed

Ampere Industries, Newark, N. J., manufacturer of All-Radiant electric space heating equipment utilizing a quartz element, has organized an Industrial Process division, according to Lester H. Mantell, president. The new division will manufacture and market Amp-Quartz infra-red heating panels for industrial processing.

Amp-Quartz oven panels are a source of long wave infra-red radiant heat, specifically designed to meet the exacting requirements of industrial process heating applications. The oven panels are designed as unit building blocks for construction of radiant surfaces to be used over conveyor belts, or as the ceiling, floor, and sidewalls of batch or continuous ovens.

Dahlstrom Appoints Representative

Dahlstrom Machine Works, Inc., Chicago, manufacturers of high speed strip and sheet fabricating equipment, announces the appointment of Batina Machinery Co., San Mateo, Calif., as their exclusive representative.

Above: With a steady flow of two enamel colors always available, production has been more than doubled. Down time for color changes and enamel replenishment has been cut 40%.

SUPPLIER PERSONALS

After 43 years with Perfection Industries and its predecessors, **Marc Resek** has retired effective August 1. He has been chief engineer, a director, vice president in charge of engineering, and vice president in charge of product and market research. Resek plans to do consulting engineering work in the future, specializing in appliance design, patent enigneering, market studies, and research on heating problems. He will remain in Cleveland, Ohio, at 3210 Warrensville Center Rd.

Appointment of **Scott Campbell** as vice president and general manager of Clad-Rex Corp., a subsidiary of the Simoniz Co., was announced recently by Herbert W. Carr, executive vice president of the parent company.

Hjalmar A. Anderson has been appointed chief engineer for the Burdett Mfg. Co., Chicago, manufacturers of industrial ovens, radiant heat combustion systems, and specialists in the industrial finishing field. He was formerly assistant chief engineer of Electric Furnace division of Sunbeam Corp.; was employed in Engineering division of Flinn & Dreffein Co., Chicago; chief project engineer for field-erected furnaces for Lindberg Industrial Corp.; and project engineer for Gas Machinery Co., Cleveland, Ohio.

The appointment of **Willis Stafford** to sales promotion and advertising manager of Detroit Controls Div. of American-Standard has been announced by F. G. Coggin, general manager, sales and marketing. Prior to joining Detroit Controls, he was with Herman Goldberg Co.

ANDERSON

STAFFORD

Pemco Corp., Baltimore, Md., announces that two new men, **Wendell A. Glick** and **E. George Stevens,** have completed their orientation programs at the home office and plant, and have been assigned territories as field engineers. A third young man, **Donald H. Kohnken,** has just entered a training program in all areas of production prior to a permanent assignment.

Glick has gone into a midwest territory as service engineer for porcelain enamel. He has been with Perfection Industries in the enameling department for 25 years. Stevens is assigned by Pemco to the West Coast as a service engineer in porcelain enamels. He was formerly with Western Electric, the Ohio State University experiment station and, most recently, at North American Aviation. Kohnken came to Pemco from the Harvard Graduate School where he earned a Master's Degree in Business Administration. His education in ceramic technology was acquired at Rutgers. At Harvard, Kohnken was the holder of the Karl Turk Fellowship for postgraduate work.

GLICK

STEVENS

Far left: Binks air-operated pumps send enamel direct from 55-gallon drums to adjacent spray booth. Binks DUALHEET paint heaters, being inspected, raise enamel to 140° F. This lowers viscosity and reduces need for thinners.

Left: Metal assemblies start 3-stage phosphatizing operation in the Mayville, Wisconsin, plant.

AT MAYSTEEL, BINKS SPRAY UNITS HELP

boost phosphatizing, priming and painting production by 200%

"Maysteel Products, Inc., produces sheet metal parts and finished products on contract. As part of our expansion program we needed a modern finishing system that would produce quality work on tight schedules. To help us solve the problem, we called in Binks," reports Maysteel's president, Mr. C. E. Stryker.

Complete finishing system

METAL PREPARATION: A three-stage conveyorized phosphatizing system was developed employing 384 Binks stainless steel spray nozzles. The nozzles completely bathe the metal parts in chemically treated water, wash water and chromic acid rinses. Materials are reclaimed and recycled.

METAL PRIMING: Continuing on the conveyor, parts pass through a drying oven into a 22′ water wash spray booth. A Binks circulating system supplies primer to two painters using Binks Model 7 spray guns.

ENAMELING: After another oven drying, the parts are ready for a coat of hot spray enamel in a second water wash spray booth. Up to five painters using Binks Model 7 spray guns are supplied by a two-color circulating system. Binks Dualheet paint heaters, located just outside the booth, raise the enamel to 140° F. This eliminates the need for thinners and insures full-coat coverage in a single pass.

Engineering assistance available

Learn how Binks extensive finishing experience and equipment can be of benefit to you. There is no obligation. Just contact your nearest Binks Branch Office or, if you prefer, write direct to the address below.

Ask about our spray painting school
Open to all...NO TUITION...covers all phases

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EVERYTHING FOR SPRAY PAINTING

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Safe Transit

→ from Page 97

Nemours & Co., Inc., Wilmington, Del.; William Spencer & Son Corp., Port Newark, N.J.; Sears Roebuck & Co., Chicago, Ill.; Container Laboratories, Inc., Chicago, Ill.; Forest Products Laboratory, Madison, Wis.; Association of American Railroads, Chicago, Ill.; General Box Co., Des Plaines, Ill.; Container Corp. of America, Chicago, Ill.; Eastman Kodak Co., Rochester, N. Y.; General Foods Corp., Hoboken, N. J.; The Pennsylvania Railroad Co., New York, N. Y.; U.S. Department of Commerce, Washington, D.C.; and The American Trucking Associations, Washington, D. C.

The NST film, "A Blindfold Removed," was shown as an introduction to the NST program. Following the film, W. M. Wilkinson, assistant secretary of the NSTC, conducted a two-hour discussion period.

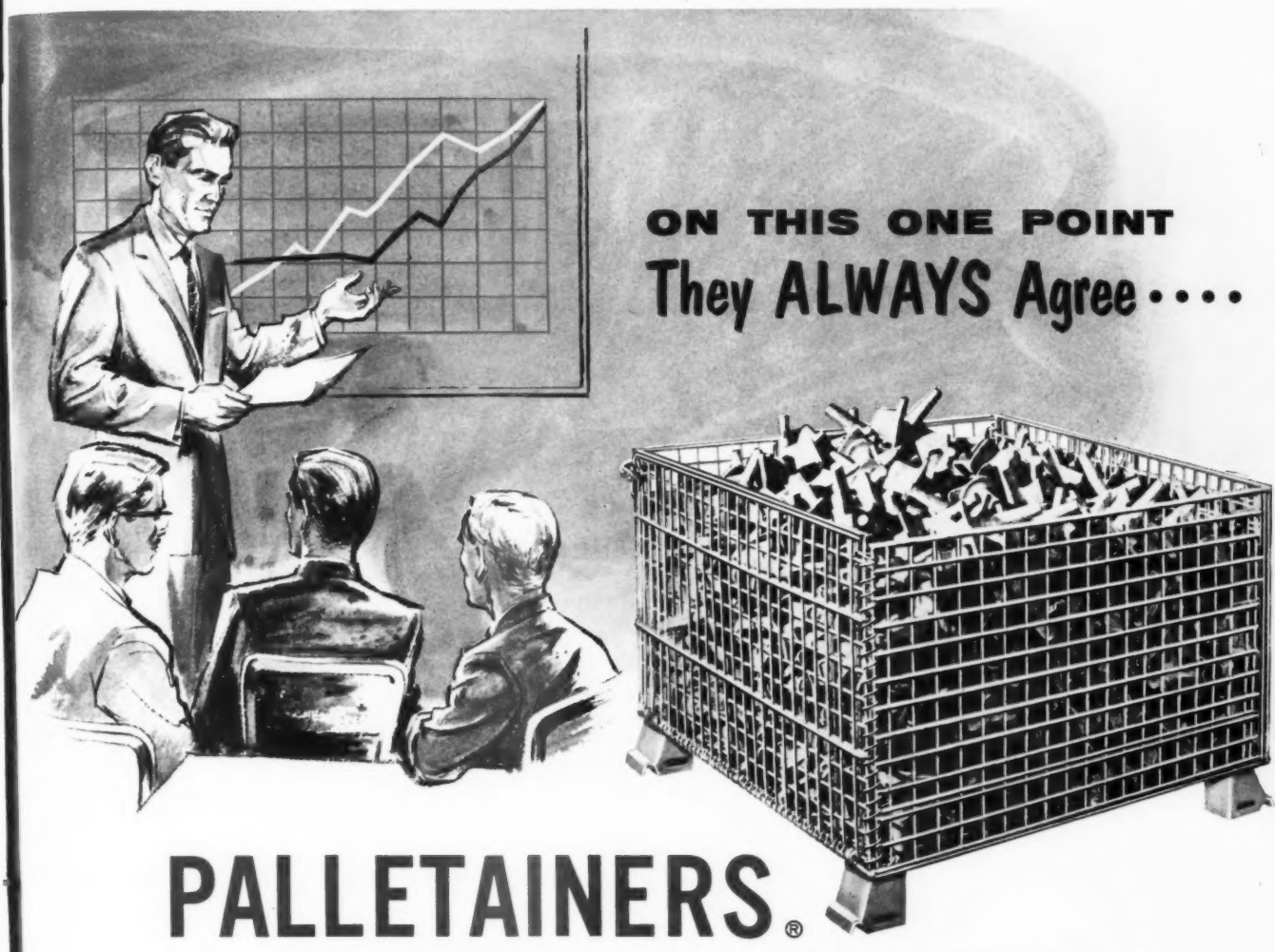
Every effort was made to encourage the concept of pre-shipment testing for Safe Transit of goods.

Bisbee Busy in Florida

Ralph F. Bisbee, general chairman, National Safe Transit Committee, introduced the National Safe Transit Committee program to the carriers and laboratories of Florida in Miami on July 15, 1958.

Purpose of the meeting was to acquaint container and testing laboratories, and all carriers with use of the NSTC program as an aid to industrial development of the state.

Airlines, railroads, and trucking organizations of the state were represented, as were the local container and testing laboratories.



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SAVE **MORE** HANDLING DOLLARS

Men who know the facts... men who make decisions, agree that Palletainers save more handling dollars.

Why? Because Palletainers have simplified materials handling problems for thousands of plants in scores of industries. These versatile, practically indestructible containers can save you time, money and manpower on in-plant transport, on the production line, in storage and shipping.

No matter what you manufacture—store or transport, *you need Palletainers!* For Palletainers carry loads up to 6000 pounds with perfect safety. Form-welded steel legs provide 8-way entry for fork lift trucks and secure ceiling-high stacking. Full visibility permits speedy inventory in or out of storage and sturdy steel rod, welded mesh protects cargo perfectly.

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Please have one of your materials handling engineers contact me at once. ☐

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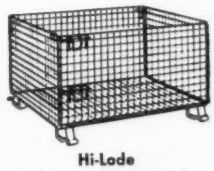

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2,000—4,000—6,000 lbs. Capacities

Bearing Plate
2,000—4,000—6,000 lbs. Capacities

Bulk Lode
2,000—4,000—6,000 lbs. Capacities

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3,000—4,000 lbs. Capacities

All Palletainers fold down to save approximately 75% of return shipping or storage space.

UNION STEEL PRODUCTS CO.

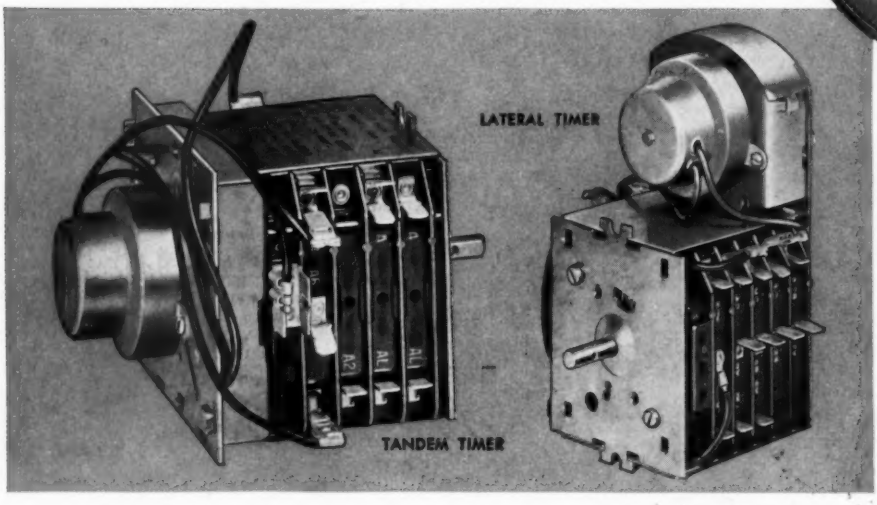
510 North Berrien Street
ALBION, MICHIGAN

Palletainers are manufactured in Canada by:
CRONAME, LTD., Waterloo, Quebec

for CONTROL...

of time intervals in sequence
it's time you checked

the Soreng Timer



If your development project or present production requires an interval timer for programing an automatic washing-machine, dryer, dish-washer, window fan, etc., then now is the time for you to check the Soreng Timer... and investigate the advantages of custom-engineered timers at low mass production prices. As a starting point, let us consider some of the characteristics of THE SORENG TIMER.

about the SORENG timer

Eight double-throw switches with off position. Axial manual shaft on-off switch, available in out-off or out-on position.

Will control up to 20 different circuits.

Short interval circuits can be provided for spray or signal purposes.

Rating: To customer specifications.

Choice of bullet or spade type terminals.

Manual control shaft ¼" dia. with threads, flats, etc., to your specifications.

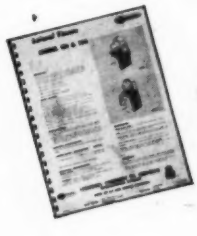
Clockwise rotation providing indexing of 36, 45, 50 and 60 distinct positions.

Accuracy is obtained by synchronous timer motor.

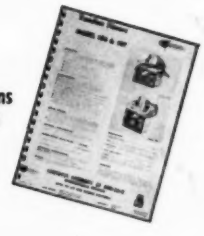
Tandem or lateral motor drive arrangement.

Stepping control mechanism is simple in design and ruggedly constructed.

In keeping with the Soreng policy of engineering products to our customers' specifications, the timer characteristics provide ample latitude for your specifications to be incorporated into the basic design. For further data, drawings and our "Timer Cycle Analysis Form," write for Bulletin SL-10 on Tandem Timers and Bulletin SL-9 on Lateral Timers... it's the next step to custom-engineered timers at mass production prices.



Timer Bulletins
SL-9, SL-10

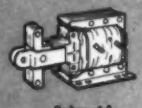


CONTROLS COMPANY OF AMERICA

Manufacturers of SORENG controls

9559 Soreng Avenue · Schiller Park, Illinois

OTHER SORENG PRODUCTS FOR THE APPLIANCE, AUTOMOTIVE AND AIRCRAFT INDUSTRIES


Solenoid

Rotary Selector Switch

Snap Switch

Shaded Pole Motor

Door Switch

Pressure Switch